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CONTENTS

	PAGE
Editorial Notes	713
Transport Users and Integration	715
Views on Transport Co-ordination	716
Worthwhile Statistics	717
Letters to the Editor	718
The Scrap Heap	719
Overseas Railway Affairs	720
British Railways Class "4" Standard Locomotives	722
Progress of New Woodhead Tunnel	724
Personal	731
Ministry of Transport Accident Report	734

Increased Investment in the Railways

THE announcement last week by the Chancellor of the Exchequer in the House of Commons that investment in certain public utilities, including railways, is to be higher this year than in 1950, seems to point to a real increase over last year, in terms of work done, in the capital improvements authorised; Mr. Gaitskell, in comparing the amount of total fixed investments, stated that the 1951 figures were in terms of the prices ruling at the end of 1950. The position regarding the investment in British Transport Commission activities since nationalisation has been complicated by rising costs, not only in the consequent reduction in the work done against any given expenditure, but also in scaling down or postponement of various major projects, such as the Camberwell extension of the Bakerloo tube. Moreover, despite representations by the Commission that reduction in capital expenditure on railways might have serious consequences on their efficiency, the approved level of expenditure in 1950 was reduced by the Treasury from £100 to £92 millions. The approved level for 1951 was £115 millions, but already in the autumn of 1950 the Commission's report for 1949 stated that it had been necessary to submit revised programmes for 1951 and 1952, for which latter year the approved level had been £123 millions. Whether the increased expenditure announced by the Chancellor will result in any appreciable increase in work done over what was planned a year and more ago, as opposed to what was eventually authorised, is problematical. The crying need for increased capital expenditure on the railways, not only for improvements but for keeping the organisation in a reasonable working condition, has been voiced not only by the Commission but also by an important section of British trade and industry in the memorandum of the Association of British

Chambers of Commerce discussed elsewhere in this issue. It is not too much to hope that the Government now has realised that the continued curtailment of expenditure on railways, whose efficiency, strategic considerations apart, is of such immense value to the national welfare, is false economy. Some time, however, must elapse before details of what is planned are available.

Railway Capital Expenditure and Controls

A GOOD deal of attention has been devoted recently to the Government curtailment of capital expenditure on British Railways. To some extent, a similar position in effect obtains in the United States. On the American railways capital expenditure has been limited by the inability of the railways to raise new money for structural works. They can issue equipment trust certificates to finance rolling stock programmes subject to Interstate Commerce Commission approval, but as a general rule have to provide money out of earnings for improvements to buildings and permanent way. That is one of the reasons for the endeavour at present being made to secure an increase in freight rates sufficient to yield a return of 6 per cent. on property investment. The United States railways are also having their troubles in securing raw materials for their rolling stock programmes. Steel allotments are made by the National Production Authority Iron & Steel Division, and complaints have been made that the allocation of steel is not keeping pace with the railways' needs for the maintenance and repair of wagons, notwithstanding the shortages which are occurring in wagon supply.

Following a Good Example

A GOOD deal of prominence has been given recently, particularly in the financial press, to the decision of the directors of Imperial Chemical Industries Limited to provide for depreciation by reference to the present value of their depreciable assets instead of to historical costs. In some financial columns the view has been expressed that this course has been made possible only by writing up such assets in the accounts to current values. It is interesting to recall that as far back as 1928 the boards of the main-line railway companies, with a prevision which often characterised them but for which they seldom received due credit, made provision for renewals of what Mr. Hugh Dalton, when Chancellor of the Exchequer, subsequently described as a "poor bag of assets," on an exactly similar basis without, however, writing up their assets in the accounts.

Replacement Costs

THE question of rising depreciation costs was discussed last week by *The Times*, which drew attention to the unfairness of the present taxation policy to firms whose business falls within fields subject to price control. When a sum equivalent only to the original cost of plant can be charged as depreciation for tax purposes and the actual replacement may be two or three times the historical cost, firms able to fix prices with some degree of freedom have often been able to earn margins which facilitate provision for depreciation over and above the tax authorities' standard; but when prices are fixed, the "reasonable" margin of profit allowed by the Inland Revenue method of assessing depreciation makes no allowance for the excess of the real over the initial replacement cost. Thus there is serious discrimination against many firms, including those engaged in Government re-armament orders, some of which have been asked to reduce their export orders. This must establish a bias against controlled as opposed to uncontrolled industrial activities which, as *The Times* points out, is not inherent in price control and could and should be removed.

Mr. J. S. Tritton

AT the beginning of this month Mr. J. S. Tritton, a partner in the firm, and in charge of the Railway & Marine Department, London, of Messrs. Rendel, Palmer & Tritton, succeeded Mr. R. A. Riddles as President of the

Institution of Locomotive Engineers, and so began his second term of office. At his election as President for the session 1947-48, Mr. Tritton had the distinction of being the first son of a former President to be elected to this office, his father, Sir Seymour Biscoe Tritton, having been President for 1926-27. Since his return from India in 1933, where he had been in charge of Messrs. Rendel, Palmer & Tritton's Calcutta branch, Mr. Tritton has been a most active Member of the Institution. He was elected a Member of Council in 1934, and in the same year won the Trevithick Award for his paper on "Railcars." The Sir Seymour Biscoe Tritton Lecture had been founded in 1939 as a memorial to Mr. Tritton's father, and in 1946 he delivered the first of these lectures to the Institution, a paper entitled "Locomotive Limitations."

Overseas Railway Traffics

THE advance in Antofagasta (Chili) & Bolivia traffics, which has continued almost without check since the autumn of 1950, reached a new high level in the fortnight ended June 15. Receipts for these two weeks amounted to £297,560, as compared with £107,560 for the equivalent period of last year, and during the second week traffics at £153,440 were more than three times greater than those for 1950. On the aggregate Antofagasta receipts for the current 24 weeks were up by £1,240,050 at £2,708,100, whereas in 1950 traffics for the equivalent period had fallen by £147,910 to £1,416,864. Paraguay Central traffics improved by \$76,185 to \$478,122 during the fortnight under review, the largest increase being in the second week, when receipts were \$34,728 higher at \$233,327. In the 50 weeks since July 1, 1950, there has been an aggregate advance by \$2,818,171 to \$10,510,421.

Electrification of British Railways

THE coal savings resulting from electrification of British railways were stressed by Mr. H. H. Mullens, Chairman of the North Electricity Board, in his paper "Electricity as a National Asset," read at Brighton last week to the British Electrical Power Convention, and the estimate was quoted which was made in the Weir Report of 1931, of a yearly coal consumption of 3,650,000 tons for generating current for traction, if the railways were electrified, against a yearly locomotive coal consumption of some 14,000,000 tons. In saying that "this alone would appear amply to justify a more progressive development of electric traction," Mr. Mullens advocates action far beyond the financial resources of the B.T.C., even supposing that other considerations, such as diesel traction, did not weigh heavily. The railways both before the war and since nationalisation have been keenly alive to the possible benefits of electrification—with due regard for economic possibilities. This is seen in the various studies of railway electrification made in the past half-century, both general and particular, such as the G.W.R. pre-war study of the Taunton-Penzance scheme. Both the Chairman of the B.T.C., Lord Hurcomb, and Sir Eustace Missenden, until recently Chairman of the Railway Executive—the latter doubtless influenced by the success of electrification on the Southern during his term of service there—have declared themselves in favour of extended electrification having regard to the financial implications. At present however the financial situation of nationalised transport is a major factor against such extension.

A Higher Price for the G.N.R.(I.) ?

THE offer of £3,900,000 made by the Governments of Northern Ireland and the Republic of Ireland for the Great Northern Railway (Ireland) may be increased when negotiations on the subject are resumed shortly. The Northern Ireland Government, however, wishes to amend in some details the arrangement for the joint administration of the undertaking by Coras Iompair Eireann and the Ulster Transport Authority. It is suggested that its new proposals are concerned with the strategic importance of the line from the Ulster viewpoint. Since the official announcement was made on January 9

of the agreement of the two Governments to purchase the railway jointly, negotiations have continued, broken recently by the change of government in the Republic. The new government in Dublin has announced that it intends to honour the agreement made by its predecessor, and it has been stated that Mr. Lemass, Minister for Industry & Commerce in Dublin will represent it when the negotiations are resumed. No date for their resumption has yet been made known. Meanwhile, the railway is expecting to receive at any moment the first subvention from both governments to enable it to keep going.

Cost of Staff Amenities

INDUSTRIAL welfare has as its objective the provision of conditions which will enable staff to work efficiently and in reasonable comfort and to ensure that measures are introduced to promote their health and happiness. Room for improvement always exists, however, whatever the industry concerned, and in the case of the railways special problems arise resulting partly from their development early in the industrial revolution when standards were very different from today, and partly from the scattered nature of railway property and staff. Railway property is so extensive that a vast sum would be needed to modernise the whole, and expenditure is limited by economic factors. However, despite these handicaps, over a period of years many improvements have been made, and according to the June issue of the *British Railways Magazine* in the past two years the Railway Executive has authorised the expenditure of more than £1,000,000 on improved accommodation and amenities for staff, together with better conditions in offices and workshops. That sum does not include an amount of £143,000 spent last year in improving housing accommodation for staff. Also, donations made by the Railway Executive to staff organisations during the past two years total over £98,000, while more than £81,000 has been advanced since 1948 for improvements to clubs, sports grounds, reading rooms, and so on.

The Tourist Trade in 1950

AGAIN in 1950 the tourist trade was our chief dollar earning export. Overseas visitors spent £54,500,000 in this country and paid £26,500,000 in fares to British carriers. This shows an increase of nearly 25 per cent. on the previous year. Receipts from U.S.A. visitors, including fare payments, amounted to £25 million. According to the annual report of the British Travel & Holidays Association the facilities offered by British Railways to overseas visitors in the form of the 1,000-mile ticket were much appreciated and the growing popularity of road transport and car hire services also was apparent. Last year indeed the car hire industry earned over £1,000,000 in foreign currency and thus has become a useful export trade. There were considerable improvements all round in tourist services and the new Ocean Terminal at Southampton is quoted as an example. Although this year the outlook for the tourist trade was at first uncertain, reports of heavy bookings, and growing optimism in the U.S.A., suggest that this Festival Year will see a further expansion of tourism. There has been little progress in the campaign to encourage people in Britain to take their holidays outside the peak period and the Association considers that a price incentive might well be offered by British Railways.

German Main Line Double-Deck Trains

THE German Federal Railways put into service on December 17 last a three-coach double-deck train with second- and third-class accommodation between Dortmund and Frankfurt. We have received further details of the train, supplementing the information given in our March 23 issue, and on page 730 of this week's issue we reproduce four illustrations of it. The first modern German double-deck coaches were introduced in 1936 by the former Lübeck-Büchen Railway; they were twin articulated

vehicles seating in all 300, and were 14 ft. 2½ in. above rail level. The new coaches, built by Westwaggon, of Cologne, are 73 ft. 5 in. long and 15 ft. 5 in. high; and are not articulated. A second set has now gone into service. It has some important differences such as provision of the second-class accommodation on the lower, instead of the upper, deck; greater length enabling the capacity to be increased; and a rearrangement of the restaurant. The two are now providing a daily return working between Dortmund and Frankfurt, via Cologne and Mainz. The trains, painted blue and highly polished, have been dubbed the "Blue Bird" by the German press. The service, over a route of some 212 miles, is almost certainly the longest ever to be worked regularly by double-deck stock.

C.T.C. on the Rhodesia Railways

IN 1948 the Rhodesia Railways ordered material from the Siemens and General Electric Railway Signal Co. Ltd. for equipping a section with centralised traffic control. It is being installed between Heany Junction and Shangani, 50 miles, on the line between Bulawayo and Salisbury; an eastward extension to Somabula is proceeding. It was hoped to introduce C.T.C. working in conjunction with the telegraph order system on the first section this month, as a preliminary to full and independent C.T.C. working later. The installation is believed to be the first introduction of the system in Africa and, apart from some sections of line in Canada and New Zealand, in the British Commonwealth. A great increase in traffic has made it necessary to take all possible measures to increase line capacity. Doubling is costly and not thought to be warranted yet. It would be difficult to build train ordering stations because of a shortage of materials, and to man them because of a shortage of trained staff and accommodation. The Heany Junction-Shangani section carries heavy traffic and is equipped mainly with wooden sleepers, necessary for the normal track circuits. Heany Junction, also, is near to Bulawayo, where the operation can be conveniently watched and staff trained.

A Dangerous Crossing

THE report of Colonel R. J. Walker on the fatal accident at the Hopworthy farm occupation crossing on September 7, 1950, when a train ran down a motor tractor and trailer and killed three relatives of the tractor driver, is summarised in this issue. The driver was well acquainted with the crossing, and he and his family had always used it with care and kept the gates locked when not requiring to pass. Various railway servants testified that no trouble had been experienced there, though mention was made of a narrow escape which occurred many years ago. The tractor driver knew the times of the trains and in some unexplained way came to believe that he had seen the train in question pass, with the result that he drove across the line without looking along it. Local conditions made it almost impossible for a user of the crossing to be certain that it was safe to pass over the line. Colonel Walker recommends that an attempt be made to abolish the crossing by agreement. If that cannot be done, a telephone should be provided, and, in the meantime, whistle boards.

British Railways Class "4" Standard Locomotive

THE first of 20 locomotives of a new standard type for British Railways has been completed at Swindon. The locomotive, No. 75000, is a Class "4" 4-6-0 tender engine, and is the third of six new classes of standard locomotives to be built this year. Certain features of design are similar to the Class "5" standard locomotives described and illustrated in our May 4 issue. The Class "4" locomotive is 13 tons 3 cwt. lighter than the Class "5" engine. Intended for mixed-traffic operating, the locomotives have been allocated to the Western and London Midland Regions, and have almost universal availability over main and secondary lines throughout Great Britain. The boiler is somewhat similar in design to that of London Midland Region Class "4" 2-6-4 tank

engine except that the length of the boiler barrel is increased by 9 in. The flanged plates are common to both. The cab follows the design of that of the previous standard locomotives. The locomotive is described and illustrated elsewhere in this issue.

Transport Users and Integration

THE reactions of a representative cross-section of British trade and industry to the British Transport Commission statement on integration policy (the subject of editorial comment in our August 4, 1950, issue) appears in a memorandum sent last week by the Association of British Chambers of Commerce to the Ministry of Transport; the memorandum is the more weighty in that it voices the considered opinion of 100 chambers of commerce with 70,000 members in all, mainly manufacturers and merchants. The Association stresses the failure, before the B.T.C. statement was issued, to consult transport users—although there were consultations with the labour organisations for over a year; the President of the Association, Mr. A. H. S. Hinchliffe, has also made this complaint in a letter to the Minister. In answer to this it might be said that, with integration in the air, the Central Transport Consultative Committee could have raised the matter; it seems however indisputable that neither this body, nor any other representing railway users, was previously consulted to the same degree as the organ for consultation with the staff, the Joint Consultative Council. To remedy this, the Association memorandum requests that the Minister of Transport establish a "joint consultative committee of representatives of the B.T.C., trade, industry, commerce and labour to consider" the B.T.C. statement on integration policy, and "direct that the statement will not be given effect until the report of the joint committee has been considered by him" and placed on public record.

Perhaps, the most remarkable and welcome of the Association's demands is that of "a long-term plan of capital investment on a substantial scale" in British Railways, to replace wartime wastage and enhance general efficiency. The Association specifically asks the Minister of Transport to consult with his colleagues on the extent to which such an investment programme should be drawn up "to meet the pressing needs" of nationalised transport.

The Minister also is asked to direct the B.T.C. in the broad principles to be followed in any future plans for transport co-ordination, with emphasis on efficiency with freedom of choice, and on use of each form of transport to the greatest national advantage with "adequate alternative facilities" for users, and competition on fair terms and consultation with users on the best means of achieving this. The Association also asks the B.T.C. to review its integration policy with particular reference to achieving economy in operation, and recognition of the dangers and drawbacks of over-centralisation and also of "the fact that road service is an essential alternative to rail transport and not merely an adjunct" to it. Stress is laid on consultation with railway users in the development of a common commercial service and on the maintenance of high service standards at the lowest possible costs.

The Association, however, contingent upon the acceptance of its recommendations, calls on industry and trade, as well as on labour, to co-operate in securing an adequate and efficient transport service in accordance with the provisions of the Transport Act. Even in 1944, in a joint report in October of that year, the Association of British Chambers of Commerce and the Federation of British Industries, whilst expressing their opposition to nationalisation considered that to "avoid unnecessary overlapping of services and uneconomic competition," some degree of co-ordination was desirable among freight-carrying services, so as to ensure that each form of transport is used to the greatest national advantage. Nationalisation at that time was not a *fait accompli* and, as *The Economist* remarked at the time, co-ordination would have been difficult to square with the degree of *laissez-faire* then advocated. Now however the Association recognises that statutory

considerations render difficult any opposition in principle to the B.T.C. integration schemes.

In matters of detail last week's memorandum makes a variety of observations. The railways are once more and, in present circumstances, somewhat gratuitously asked to look to economies in operation. Stress is laid on the desirability of not introducing facilities without adequate notice to Area Consultative Committees—which seems to hint at some dissatisfaction in this respect. Allusion is made to the use in the B.T.C. statement of the term "economy in tractive effort" as a criterion of suitability of road haulage in long-distance transport. In view of recent statements by the B.T.C. "loadability" is a factor to which greater weight is now given. The Association however states that trade and industry use "cost per ton-mile." "Tractive effort" needs clarification, and is an unfortunate term to use in any context other than that of locomotive power.

The memorandum repeats the allegation often made, of shortages of special types of wagon. The shortages referred to presumably are those, local and temporary, which arise through operational difficulties due to manpower shortages and other causes, against which the Railway Executive is taking active steps. It is not therefore correct to say, as in the memorandum, that "this situation is likely to continue indefinitely." In view of increased wagon capacities and more economical working due to abolition of privately-owned wagons, no absolute shortage of wagons—despite the greatly increased volume of traffic—appears to exist.

South Australian Railways

WE have received from Mr. R. H. Chapman, Railways Commissioner, his report upon the South Australian Railways for the year ended June 30, 1950. It shows that ordinary earnings, supplemented by a grant of £600,000 from the Commonwealth Government to offset losses due to the coal strike, amounted to £7,149,226. Net expenditure on working, including pension charges, but less a Treasury contribution of £1,600,000 towards increased working costs not covered by increases in rates and fares, was £6,671,987. There was thus a surplus on working of £477,239, but when interest, sinking fund and depreciation charges had been met, and despite a further Treasury contribution of £800,000 to debt charges, a debit of £518,384 resulted. Ultimately therefore there was a net deficit of £41,145.

The Commissioner points out that, in the present period of inflation, unless the Government sanctions substantial increases in passenger and freight charges, considerably greater subsidies from general revenue will be necessary. He also shows that annual railway expenses have increased by over £4 million since 1937-38, due to causes outside the control of the administration, notably £2,500,000 increase in wages resulting from Arbitration Court awards, and £1,300,000 increase in cost of coal, materials and supplies. For instance, the price of sleepers has risen by 300 per cent., and that of coal by 163 per cent., whereas the average corresponding increase in freight rates is only about 50 per cent.

The principal results during the years 1948-49 and 1949-50 were:—

	1948-49	1949-50
	(Thousands)	
Total train-mileage	6,059	6,355
Passenger journeys	18,210	17,385
Goods gross tonnage	3,815	4,715
	(£ thousands)	
Coaching receipts	1,355	1,378
Goods receipts	4,023	4,637
Total receipts	5,885	6,549
Total working expenses	7,139	8,272
Deficit (including interest)	2,550	41

Due to increased business, net ton-miles increased from 485,000,000 to 490,000,000 despite the effect of the coal strike, and this increase and the rise in freight rates and fares accounted for £340,000 of the increased revenue during the year.

Notable traffic increases included interstate full-wagon-load contracts with customers and the very successful introduction of container traffic between Sydney and

Adelaide via Broken Hill. Revenue from concentrates from Broken Hill increased from £658,000 to £929,000. The decrease in passenger journeys was accounted for partly by the coal strike and partly by the abolition of petrol rationing, though more passenger trains were run than in the previous year. Four of the new roomette sleeping car services were in operation by June, 1950, and were well patronised.

As the railways were unable to obtain sufficient black coal, the policy of converting locomotives to burn a mixture of heavy oil and coal was continued. By June, 1950, 58 broad-gauge and 18 narrow-gauge engines had been converted, though this entailed an additional fuel cost of some £200,000 a year. Shortage of materials, and steel-work in particular, curtailed fulfilment of the rolling stock programme. Overseas orders for 600,000 tons of steel and a call for tenders for the manufacture of wagons were therefore necessary. About 120 goods vehicles and 43 containers were placed in traffic during the year. Thirty sets of 200-h.p. diesel engines were ordered from America for 14 railcars of a new type; 11 trailers are to be built to work with them. Twenty-one diesel sets obtained from the United Kingdom are replacing petrol engines in older railcars, which are being modified to work by remote control as multiple units as do the new railcars.

The conversion of the Wolsley-Millicent line to 5 ft. 3 in. gauge was completed as far as Naracoorte and opened for passenger traffic on February 1, 1950. Progress on the Naracoorte-Mount Gambier section has been delayed owing to shortage of rails and sleepers. Orders for 20,000 tons of rails have been placed overseas. In such conversion works arrangements are made whereby subsequent conversion from 5 ft. 3 in. to 4 ft. 8½ in. can be effected at a cost of about 3 per cent. of the total cost of conversion.

As no progress could be made with the agreement for a general standardisation of gauge in New South Wales, Victoria, and South Australia, a separate agreement was concluded between the Commonwealth and South Australia, and legislation approving it was passed by both Governments towards the end of 1949. Accordingly, the whole South Australian system, except the lines in the Eyre Peninsula, is to be converted to 4 ft. 8½ in. gauge, and a railway of that gauge is to be completed by the Commonwealth from Port Augusta to Darwin. The final change-over is planned to be completed in three months.

Views on Transport Co-ordination

A RESUME of views on transport integration and co-ordination expressed by a number of delegates to the Fifteenth International Railway Congress held in Rome last October, is given by Mr. A. A. Harrison, Executive Officer (Road Transport), the Railway Executive, in the April issue of the *British Transport Review*. (Some of the reports to the Congress on this subject were summarised in *The Railway Gazette* at the time of the Congress.) On the general question of rail *versus* road, a significant view is that of Lord Hurcomb, Chairman of the British Transport Commission: "Charges will be the principal means of guiding traffic to the means of transport that can most economically carry it from a national standpoint; charges policy is probably the key to effective integration." A reporter on road competition also points out that "in Great Britain it is felt . . . that a . . . means of steering traffic to rail or road may well be found in the promotion of a common commercial organisation for all the transport services of the B.T.C., so that the merits of the different forms of service can be presented together . . . and the movement of traffic influenced to the mutual benefit of trader and Commission." Mr. Harrison draws attention to the practice of the Indian and New Zealand Governments. The former reserves long-distance freight traffic to the railways, leaving the transport of short-distance traffic to the discretion of consignors, and the latter has agreed with the road operators that the railways will not undertake town delivery, provided that road operators do not seek licences to operate services competitive with the railways.

In contrast with Continental tendencies, the B.T.C. policy of developing its own cartage organisation (even although cartage work is to be transferred from the Railway to the Road Haulage Executive) is as comprehensive as any. As regards railhead traffic concentration, which is being pursued by the French National Railways, Mr. Harrison points out that it has yet to be proved that resultant potential rail economies would exceed the additional cartage costs. In addition, the consequences must be considered of withdrawing local terminal facilities from traders who choose to cart their own traffic; this latter point was stressed in the conclusions of the Congress.

The problem of closing unremunerative branch lines, which is concerned with that of transport integration in the consideration of substitute road services, was dealt with at considerable length by the Congress, and necessarily somewhat inconclusively. Mr. Harrison, however, sums up, as far as this is possible, some of the views expressed and conclusions reached. In addition, he draws attention to the importance, in the consideration of integration, of costing in the various modes of transport, so as to afford accurate knowledge of comparative costs. Finally, he stresses the prominence of the B.T.C. in the implementation of its policy of integration, in which it is perhaps unique, at least among the world's larger inland transport undertakings.

Indian Railway Orders

IN 1952-53 India is to spend some Rs. 420,000,000 on buying 227 locomotives, 8,000 wagons, 1,400 coaches, and other railway equipment. The Standing Finance Committee of the Railway Board has passed a further programme to this effect.

Further details have become known of the orders which India has already placed abroad for delivery in the current financial year (1951-52). They include 182 locomotives, to be supplied by Britain, France, Germany, and Switzerland; 250 coaches, by Germany; and 7,571 wagons, by Austria, Germany, Belgium, Holland, France, and Switzerland.

The breakdown of the orders, details of some of which were given in the contracts columns in our December 1, 1950, and January 12, 26, and April 6, 1951, issues, is as follows:—

Country of manufacture	Number expected to be delivered ex-works during 1951-52	Landed cost Rs.
Locomotives		
Britain	119	40,885,000
Germany	48	11,984,000
France	10	2,105,000
Switzerland	5	2,180,000
Total locomotives	182	57,154,000
Coaches		
Germany	250	33,250,000
Wagons		
Austria	250	4,375,000
Germany	1,050	11,100,000
Belgium	4,270	46,335,000
Holland	1,000	10,000,000
France	1,000	10,000,000
Switzerland	1	300,000
Total wagons	7,571	82,110,000

The following table shows the classes and the landed cost per class of the locomotives to be supplied during 1951-52:—

From Britain— Class		Landed cost Rs.
WG (2-8-2) (broad gauge)	North British Locomotive Co. Ltd. ...	448,000
WM (2-6-4T) " "	Vulcan Foundry Limited Robert Stephenson & Hawthorns Limited	275,000
YP (4-6-2) (metre gauge)	North British Locomotive Co. Ltd. ...	287,000
From Germany— Class		
YP (4-6-2) (metre gauge)	Krauss-Maffei A.G., Munich ...	287,000
ZB (2-6-2) (narrow gauge)		181,000
ZE (2-8-2) " "		228,000
ZF (2-6-2T) " "		167,000
From Switzerland— Class		
X (0-8-2T) (metre gauge)	S.L.M., Winterthur ...	436,000
From France— Class		
ZB (2-6-2) (narrow gauge)	Corbet Louvet et Cie ...	203,000
ZE (2-8-2) " "	" " " " " " " " " " " "	242,000

Worthwhile Statistics

(By a correspondent)

THE annual traffic statistics of the U.S.A. railways arrived towards the end of April, and were more refreshing than normal, because conditions changed suddenly mid-way through 1950 and lifted the net ton-mileage for the whole year fully 10 per cent. above the 1949 level. It is a statistical axiom that freight-train operations show better results in periods of high traffic volume, save perhaps in the matter of train speed. Let us see how far last year's experience conformed to rule.

The table below compares for 1950 and 1949 the density of traffic and four significant statistics for all the U.S.A. railways, which operate 225,340 route-miles.

	1950	1949	Increase per cent. on 1949
U.S.A. Railways			
Density of traffic (net ton-miles per mile of road per day)	7,570	6,814	11
Net ton-miles per freight-train hour	20,344	19,023	6.9
Train load (tons)	1,224	1,138	7.5
Per cent. loaded to total wagon-miles	65.9	63.7	—
Freight-train speed (m.p.h.)	16.8	16.9	—

The railways improved their 1949 standard of performance except for a slight decrease in train speed, recovering quickly from a serious set-back early in 1950.

The second table gives the same particulars for America's premier railway, the Pennsylvania, which operates freight trains over 10,040 route-miles.

	1950	1949	Increase per cent. on 1949
Pennsylvania Railroad			
Density of traffic (net ton-miles per mile of road per day)	14,197	12,870	10
Net ton-miles per freight-train hour	21,230	20,207	5
Train load (tons)	1,483	1,399	6
Per cent. loaded to total wagon-miles	66.9	62.7	—
Freight-train speed (m.p.h.)	14.6	14.9	—

The Pennsylvania also improved its results, except for a small loss of speed, due partly to the heavier train load and partly to train engines spending 23 per cent. of their time on station shunting, as compared with 22 per cent. in 1949. The whole of the train engine hours are taken into account in calculating speed, which would have been 19 m.p.h. if shunting hours had been left out.

The longest railway in the U.S.A., the Santa Fe with its 13,070 miles of road, had less than half the traffic density of the Pennsylvania and a train load of 1,075 tons. Its locomotives had long runs and spent only 17 per cent. of their time shunting, with the result that a train speed of 20.5 m.p.h. was attained. The Union Pacific, with a traffic density over 40 per cent. greater than the Santa Fe and a train load of 1,182 tons, moved its freight trains faster. Its speed of 22 m.p.h. was the top figure for the large railways and showed that an increase in mobility was not incompatible with a rise of 15 per cent. in net ton-miles per mile of road per day.

Transport requirements in the United States fluctuate frequently and violently. The President of the Association of American Railroads did not exaggerate when he said in March that meeting emergencies through organised co-operation was a living tradition with his member companies. In particular the railways work constantly with the Shippers Advisory Boards. The A.A.R. keeps these bodies and the general public posted about the transport situation, giving details of wagon supply and shortages, the wagon turnaround time, movements of seasonal traffic, and equipment data. A frank explanation is always forthcoming of current difficulties in railway working. If movement had deteriorated on the U.S.A. lines as *Transport Statistics* show it did on British Railways in December, January, and February, the public would have been told early what was causing the trouble and what was being done to remedy matters.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Transport—A Liability for Ever?

June 15

SIR,—I am interested to note Mr. F. Smith's letter in your June 1 issue in response to mine which you were kind enough to publish on May 18.

Unfortunately he does not deal with the specific points raised, but asserts that increased prices, *i.e.*, for coal, steel, timber—to give only a few essential basic materials—need not mean increased total cost. I am sure your readers would like to know how this can be achieved. May I say that I am not familiar with the various addresses, articles, and letters to which he refers.

With regard to road haulage, there probably is an excess of road transport facilities, due in a large measure to tonnage acquired under nationalisation with, at the same time, a substantial increase in the use of "C" licence vehicles carrying a large amount of traffic previously dealt with by private road hauliers. Especially would this be the case in the agricultural industry.

Perhaps the Railway Students' Association would extend an invitation to Mr. Smith (which I hope he would accept) to give a paper on the subject of the present correspondence. This would afford him an opportunity of explaining in more detail the theories and proposals he has in mind to provide cheaper and more efficient transport, as well as show a profit to the State instead of annual deficits.

Yours faithfully,

H. F. DALTON

263, Eastcote Road, Eastcote

Railway Efficiency

June 7

SIR,—Two correspondents to your June 1 issue, Mr. Dalton and Mr. Burrell, either do not know or believe there is a shortage of staff on the railways. Surely they realise that the railways cannot now make effective demands in the labour market. The reason for this should be clear. Although it does not excuse the things complained of, it explains them.

I often think there is too much criticism of those who try to keep the wheels turning. These men work long hours, not always under ideal conditions, and a mistake can easily lead to fearful consequences. Railwaymen may have all the faults the critics say, but behind the faults is bewilderment. They are bewildered by incomprehensible decisions, by orders cancelled within hours and by immature plans, while Messrs. Biff and Buff grin all over their silly faces railwaymen become cynical. They know also that redundancy stalks in the midst of a staff famine, a redundancy, based not on quality of service, but quantity.

Mr. Lewis thinks there is need for a spiritual revival. That may be true, but the evangelism on the railways must not be empty slogans and naïve exhortations from shadowy figures in remote offices. "Efficiency" "Economy" and "Joint Consultation" are only gibberish to the shunter stumbling round an ill-lit yard, and to the engineman leaning over his cab side on a bitter winter's night. What is needed is a confidence in leadership inspired by the personal example of those who can evoke, spontaneously, team spirit.

But what would happen if the vacancies were filled? The total wage bill, in spite of present overtime, would probably rise but average earnings would fall. Two results are likely: a demand for an all-round wage rate increase, or a renewed drift from the railways.

The problem behind the staff shortage is, what amounts of the national resources of men and materials are to be allocated to each form of transport and, having decided on them, how the allocations are to be made. Whether this is to be done by the people through Parliament or by

the people through public demand is largely a political question. Transport should not become a party whipping boy, but somehow a solution must be found. If it is not Mr. Burrell may well be misdirected again, and Railwayman Snooks, unless he knows if his chosen profession is going to offer anything more than stagnation or redundancy, will certainly not care less.

Yours faithfully,

GEO. F. THOMLINSON

56, Stockens Green, Knebworth

French Railways Electrification

June 15

SIR,—I read with interest the letter from Mr. H. Charnley which you published in your May 25 issue under the heading "Impressions of the French Railways."

While I appreciate very much the kind things he writes in this letter about the French Railways, I am most surprised at his statement that "...only a country like France whose economy was not wrecked by the last war could afford such a luxurious electrification scheme..."

I should have thought it was reasonably common knowledge that after four years of occupation during which our common enemy pillaged, looted, deported millions of French men and women, and extorted a crippling indemnity, and five years of colossal war damage, France's economy was in as parlous a state as that of any other country of Western Europe when hostilities ceased.

However this may be, the electrification of the Paris-Lyons main line, far from being luxurious, will result when completed in such substantial economies in working that it is estimated the capital cost will have been redeemed in 10 or 11 years. The scheme will also afford welcome relief to the national economy inasmuch as nearly half of the electrical energy required will be provided by hydro-electric power stations with a consequent saving in the national coal bill.

In accordance with their policy of always endeavouring to improve their services, it is true that the French Railways have been experimenting recently with the 50-cycle a.c. system of electrification on a line for which it seems suited, but it was decided several years ago that the Paris-Lyons electrification was of such immediate necessity that it could not await the outcome of these experiments, and must be proceeded with on the existing 1,500 volt d.c. system. I may add that the results of these experiments are so satisfactory that it seems likely the 50-cycle a.c. system will be used wherever possible in future.

Yours faithfully,

P. R. DESHAYES
Managing Director

French Railways Limited, 179, Piccadilly, W.1

New Cumberland River Bridge, S.R., U.S.A.

June 4

SIR,—I have just read an article in your May 11 issue dealing with the Southern Railway System's new Cumberland River Bridge. On page 532 it is stated that "silicon steel is used throughout the superstructure except in the vertical members."

This statement is slightly in error; it should read—"Silicon steel is used in main truss members, except verticals, and in main truss gusset plates." There is, of course, no economy under our present specifications in using silicon steel in the floor system, and there is no need for it in the bracing systems.

Very truly yours,

ALVIN R. SCHWAB

Southern Railway System,
Office of Chief Engineer,
Washington 13, D.C., U.S.A.

THE SCRAP HEAP

Railway Magpies

A tantalising railway trip for bird-nesting small boys in Australia is that over the plains of Victoria which are without trees. Wire brackets have been fixed to the line-side telegraph poles to induce magpies to nest on them instead of among the wires. Near Wallan, on the Melbourne-Sydney route, there is usually a nest on every second pole.—From *"The Manchester Guardian."*

Record Train Journey to Festival

On June 23 a party of Thurso girl guides set out on what is claimed to be the longest journey in Britain to the Festival of Britain. The round trip was 1,544 miles from Thurso to London and back. The girls—five adults and nine juveniles—left Thurso Station in the Scottish Region at 8.25 a.m. on Saturday and arrived at Euston on the Sunday morning. British Railways made arrangements for them to visit the South Bank Exhibition.

Festival Railway Exhibition

The interest of the general public in railways has seldom been more pronounced than during the Festival of Britain fortnight at York from June 4-16 when a selection of 12 modern and historic locomotives and rolling stock attracted 47,590 visitors of whom 15,628 were children. So great was the demand for programmes at 3d. each that the original print of 5,000 had to be increased first by 3,000 and later by a further 4,000, and all were sold.

Visitors were intrigued by finding drawn up end to end in York Old Station the private saloons of Queen Adelaide, Queen Victoria, and that of the present Queen, each with their

greatly different fittings visible through glass. Locomotive comparisons were *Locomotion No. 1*; *Mallard*; locomotive No. 70000, *Britannia*; Ivatt "Atlantic" No. 251; and a Bo + Bo electric locomotive for the Manchester-Sheffield-Wath electrification. Other exhibits were the Royal coach No. 396; Stockton & Darlington coach No. 31, a modern first class sleeping car, a Royal Mail van, and a chaldron wagon.

The Last Word

It was all conducted with great dignity when they opened a new Japanese railway station at Matsu Ichikawa. A girl singer in traditional robes stepped up to the rostrum, bowed to the crowd. Ah! An old Japanese ballad, they thought. She sang the current hit: "I've been working on the railroad."—From *"The Daily Graphic."*

In Praise of Train Meals

Railway meals come in for so much criticism that it is refreshing to hear them praised for once. John Arlott has been observing them for some time, an experiment which, he says, in an article in *The Evening News*, required a little courage after the "baked beans or boiled cod" of the immediate post-war period: He gives high marks to luncheons and dinners on trains, though he finds the breakfasts heavy—the stewed fruit lacks freshness—and the teas hurried. He prefers the last sitting, after which one may relax with a cup of coffee—"a second without extra charge if you wish"—and linger over a cigarette.

The service, he thinks, has improved in courtesy and efficiency. In wines he chooses "Medoc, Produce of France,

Bottled at Paddington Station;" at 4s. 6d. a quarter-bottle "it is a real temptation to the solitary traveller to give himself a party on it," and it "travels" better than Chateau Latour St. Pierre, 1945, a dearer claret. As Mr. Arlott likes cheese, the Western Region is his favourite dining line, for it alone serves salad, especially radishes—and he concludes, "radishes, a good cheese, and red wine at the end of a leisurely meal for me at least make even the gloomier industrial fringes of the line look bright."

Doing a Good Job

Just as a personal experience of what can be done by the staff to improve relations, we mention this. At St. Pancras the other day we met the most obliging porter in a long experience. Taking our luggage, he asked what train we wanted, told us the platform and the time it would be there, as well as the departure time; trotted off to the buffet, found a chair, and said: "I will call for the baggage as soon as the train is in." There was no reason why he should accord us this consideration, but he was doing a good job for British Railways.—From the *"Sheffield Telegraph."*

Plea for G.W.R.

The late lamented Great Western Railway, whose only rival in the affectionate esteem of the travelling public was the L.N.W.R., has a new and sturdy champion—the recently formed West Country Writers' Association. This body, the president of which is Mr. Eden Phillpotts, is to petition for the restoration of the name.

West Country writers feel that a title so affectionately and obstinately retained in the common speech should not have been dropped, "especially since the G.W.R. has figured more in English literature than any other railway."—From the *"Daily Mail."*

A Diesel-Electric Replies

(To the verses by A. B. in our June 8 issue)

Critic, I'm impelled to write
That I'm quite a handsome sight
Sailing proudly through the land,
Lots of volts and amps. in hand
(Is this the Shap they talk about?
Notch me up and iron it out!)
Scorn me not, nor let it irk
That I'm master of my work,
Keeping schedules to the minute,
Can you find no beauty in it?

How I grieve to think you feel
I lack advertisement appeal,
Wanting both in smoke and noise
To captivate admiring boys
Yet when rumour waxes hot
That I'm on the "Royal Scot"
Hear the tramp of eager feet
From Grays Inn Road to Drummond
Street!
See where my admirers stand
Pencil and "spotting" book in hand.
10000 and 10001



Entrance to the Festival Railway Exhibition at York Old Station which attracted 47,590 visitors (see paragraph above)

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Free State Goldfields Line

Parliamentary authority is being sought for the construction of a line between Odendalsrus and Allanridge, to serve four of the largest mines on the Free State goldfields. For ten years after the opening of the line, the railway administration is guaranteed against a loss on working by the Anglo-American Corporation of South Africa Limited.

The line, about nine miles in length (excluding loops and sidings) is expected to cost about £369,000, or about £41,000 per mile. In introducing the second reading of the Bill, the Minister of Transport said that it was hoped to have the new line in operation within 15 months. There would be a gap of about 12 miles between Allanridge and the Bultfontein line, said the Minister, and when the lines were linked at some future date, two routes to the Odendalsrus area from the Witwatersrand would be provided. Mining operations near Allanridge began in May last year and shafts are being sunk.

CANADA

Place Viger Station Closed

The Place Viger Station of the Canadian Pacific Railway in Montreal was officially closed on June 1. In later years it was used only for passenger trains between Montreal and the Laurentians, Quebec City, and Ottawa. The adjoining hotel, closed during the 1930s, will be taken over by the City of Montreal.

The station was opened in 1898 to replace one erected in the 1880s on the site of Dalhousie Square, and named after the square. From Dalhousie Square, in June, 1886, the first scheduled transcontinental train in Canada left for Port Moody on the Pacific coast.

After 1898 Place Viger Station was a busy terminal, but recently passenger trains had been gradually diverted to the more central Windsor Station. Park Avenue Station is also now used as a terminal for some trains formerly using Place Viger.

No Substitute for Railways

There was no substitute for railways if the continued development of the country was to be encouraged, Mr. S. W. Fairweather, Vice-President of Research & Development, Canadian National Railways, Montreal, said recently. "While the railway could transport them great distances at rates which admit development, the highway could move commodities only relatively short distances before the costs became prohibitive. Can you imagine wheat grown in Saskatchewan being trucked 2,500 miles to Halifax for export?" he asked. "The lowest conceivable cost of highway transport would be \$3.80 a

bushel. But wheat is not worth that much, and if only road transport were available, no wheat would be grown in Saskatchewan for export. The railway performs the service for 39 cents, permitting wheat to be grown profitably."

Vancouver Island Railway

The Esquimalt & Nanaimo Railway, on Vancouver Island, one of the most picturesque in Canada, may abolish passenger services because of bus and car competition.

It runs from Victoria to Courtenay, 210 miles, with branches to Port Alberni, Cowichan Lake, and Great Central Lake.

An official has stated that abolition of passenger service had been under consideration for a long time. Continuation of freight and logging operations is planned, if the passenger service is terminated. Mail may be carried by bus or lorry.

The railway was begun in 1886 by Robert and James Dunsmuir in connection with development of their coal-mining interests at Nanaimo. It was taken over in 1905 by the Canadian Pacific Railway, which owns a controlling interest in Vancouver Island Coach Lines and the Island Freight Service, the railway's largest competitor for passenger and freight traffic. It was one of the first lines in Canada to have a complete installation of diesel power, but a weak roadbed prohibits high speeds.

C.P.R. New Rule Book

During the next three months 27,000 operating officers and employees of the Canadian Pacific Railway will attend instruction classes and examinations. A new universal rule book governing the operation of all railways coming under the jurisdiction of the Board of Transport Commissioners has been brought out, and the new rules take effect on August 26.

The book, developed from modern railway practice and years of experience in train operation, is basically the "standard code," which is the recognised authority for all railway rules in North America. The Canadian Pacific has appointed rules instructors on each superintendent's division to assist all staff learning the new rules. They will work under the supervisor of region rules instructors. All instruction and examination will be completed by August 26. Employees will be required to write comprehensive examination papers, some of them totalling up to 1,068 questions, and undergo oral examinations before being certified as qualified to work under the new code. Each successful student receives a card certificate.

There are different examinations for different categories of employees. Until now, each railway has operated under its own set of rules, but the new book

will mean that a man will have only to qualify once to work on any railway operating under the new code.

Proposed C.N.R. Line to Kitimat

Canadian National Railways engineers are studying a route for a new line to link the growing aluminium town of Kitimat with the main C.N.R. line out of Prince Rupert. Officials of the C.N.R. are now on the scene trying to trace a survey of the Grand Trunk Pacific (made in the early days of the century) which once contemplated making Kitimat its Pacific coast port.

No route has been announced and no indication has been given when construction will start. The line will traverse the 38-mile valley from Kitimat, at the head of the north arm of Gardner Canal, to the small town of Terrace, on the C.N.R.

ARGENTINA

Inauguration of Rio Turbio Line

The new light 75-cm. gauge railway connecting the Río Turbio coalmines with the port of Río Gallegos, approximately 180 miles, has now been officially inaugurated. Little more than a year has elapsed since it was decided to build it. In May last year the survey was completed, and in June materials began to arrive at Río Gallegos. Work began in September and the line has now been completed at a cost of 40,000,000 pesos.

In spite of a number of great difficulties, such as bad weather and the lack of installations at Río Gallegos, 50,000 tons of materials were transported to that port, and in a five-month period, 500,000 sleepers were prepared, and more than 1,000,000 cubic metres of earth were shifted to make embankments and cuttings. A 70-metre bridge was thrown over the Gallegos river, four of 20 metres over the Turbio river, one of 30 metres over the Zurdo river, and one of the same length over the Gallegos Chico River.

For the moment the rolling stock will consist of eight lightweight locomotives bought in 1921 and deposited in Puerto Madryn without ever having been used, and 150 wagons reconditioned in the Bahía Blanca workshops of the General Roca Railway. Plans have been drawn up for the purchase of 32 300-h.p. single-unit diesel-electric locomotives, capable of hauling a 2,000-ton load with four units coupled together under the control of a single driver. Some 660 17-ton coal wagons are also on order so that a daily traffic of 6,000 tons of coal may be dealt with. A number of cattle wagons, box wagons and passenger coaches will be acquired later.

Tenders will shortly be called for the construction of the necessary port works in Río Gallegos, with special equipment for the handling of complete wagon-loads of coal, and it is hoped

that within a comparatively short period there will no longer be any necessity for the importation of coal.

SPAIN

"Catalonia Express"

The night service between Madrid Atocha and Barcelona Termino, the "Catalonia Express", now performs the 426-mile journey thrice weekly in 14 hr. 35 min. east—and 15 hr. west-bound, against 15 hr. and 15 hr. 15 min. respectively by the day express. At Barcelona there is connection in both directions between a through sleeping car between Port Bou/Cerbère (on the Franco-Spanish frontier, with break of gauge) and Rome via Nîmes, Marseilles, Nice, and Genoa. This enables the journey between Rome and Madrid to be completed in some 50 hr.

PORTUGAL

Diesel Traction

In 1949 and 1950, twelve 1,500-h.p. diesel-electric locomotives supplied by the American Locomotive Company, were put into service on the main lines. They have made it possible to double the load of trains.

Through Marshall Aid five more new locomotives of the same type were supplied by the same makers in 1950 and

17 of 1,350 h.p. by Baldwin Whitcomb; the latter are for service in the suburbs of Lisbon.

All will be put into service in August, and will eliminate the smoke nuisance in Lisbon Rossio Station and in its approach tunnel.

ITALY

Railway Development in the South

In a speech made in connection with the industrialisation of Southern Italy, the Director General of the Italian State Railways, Signor G. di Raimondo, emphasising the pre-war preponderance of Northern Italian industry in the supply of material to the Italian railways, stated that about one-half of the amount spent on completion of post war reconstruction would be to the benefit of railway industries in the South. An extensive scheme has been prepared for electrification of lines in Southern Italy, embracing some 550 route miles.

AUSTRIA

Vienna Underground Proposal

Herr Franz Musil, formerly Chief Engineer of the City of Vienna, has suggested that an early start should be made on underground railway construction in Vienna. Plans for underground railways in the city have been

mooted for half a century. The usefulness of the Stadtbahn, an efficient and vital part of the urban transport system is lessened by its roundabout route away from the main radial traffic flows. A scheme for radial routes was prepared in 1910, and the question was again taken up during the war, when detailed surveys were undertaken for about 10 miles of routes. These plans are still available and would permit a rapid start of work if it were possible to finance the scheme.

Herr Musil suggests that underground railway construction in Vienna should be made part of a comprehensive public works programme which would counteract the seasonal drop in employment in the building trade. As the lines would be in cut-and-cover tunnels, most of the work would be weather-protected and could be carried out during the winter when outdoor building activities are restricted. Work on the underground railway would thus proceed fairly slowly, and might be partly financed by a slight increase in tram fares. Although, on this basis, it would take eight years to build the first line, which is proposed to run from Praterstern via Schwedenbrücke, Stephens Platz, Kärntnerstrasse to the Opera, this would nevertheless be a most useful beginning towards improving transport conditions in Vienna.

Publications Received

On Railways at Home and Abroad. By P. Ransome-Wallis. London: The Batchworth Press Limited, 54, Bloomsbury Street, W.C.1. 8½ in. x 5½ in. 300 pp. Illustrated. Price 15s.—This book will be of interest to professional railwaymen as well as amateur enthusiasts and non-technical readers. The author, recognised as one of this country's leading railway photographers for many years, describes in easy, straightforward style some of his railway experiences in many parts of the world. His main subject is locomotives and their operation, and in the case of the British railways there are descriptions of the more modern types of engines in use when grouping took place in 1923, and a review of subsequent progress in steam traction. Of special interest are the numerous footnotes giving concise biographies of the big names in locomotive design. Development of the tank engine is studied in some detail, and the chapter ends, prophetically, on a speculative note concerning the abilities of the lately scrapped prototype "Leader" class. Throughout the book there are many fascinating anecdotes of the author's footplate experiences; perhaps the highlight is the account of his driving of the *Dr. Syn* from New Romney to Hythe. Details of design and working in several European countries and places as far apart as Africa, Newfoundland, Ceylon, and Trinidad, most of them visited before and during the last war, are also included. In the five chapters devoted to the United States and Canada the

characteristic differences between the North American locomotive and its British sister are described. Mr. Cecil J. Allen adequately describes the book in his foreword with the words: "informative, pleasantly reminiscent, and unfailingly interesting." Most of the illustrations, of which there are over 100, are of a very high standard, and the informative comments accompanying many of them will be appreciated.

Standard Methods of Analysis of Iron, Steel, and Ferro-Alloys. Sheffield: The United Steel Cos. Ltd., 17, Westbourne Road, 9½ in. x 6½ in. 169 pp. Price 17s. 6d.—In the earlier days of iron and steel making the methods of manufacture were largely of rule-of-thumb. Such externals as the size and colour of the flames issuing from the mouth of the converter ruled the production of steel by the Bessemer process, but the advent of open-hearth working, with the possibility of sampling the charge throughout the conversion, began to lay progressively greater stress on the importance of analysis. With the passage of years, as the influence of harmful constituents, no less than the effect and value of alloying, have become more fully realised, precision of analysis has become more and more essential. The United Steel Co. Ltd. have done a most useful service in collating in book form the detailed instructions for analysing every description of iron, steel, and ferro-alloys now standard at the various works of this large combine. It is significant that this is the fourth edition called for since

the first edition of 1933; the principal addition in the fourth edition is of various modern physico-chemical methods of analysis that have proved of great value in the firm's research work.

Tangyes Hydraulic Jacks.—The firm of Tangyes Limited, Birmingham, recently has issued a catalogue (No. 692) in which are incorporated illustrations of different types of special-purpose machines in addition to the standard types in usual demand, together with descriptive matter on methods of working. Included are examples of jacks used in railway workshops and for raising locomotives which have been derailed. Jacking gear for heavy road transport is also featured in this catalogue.

A.B.C. Coach Guide: Summer 1951. Edited by Paul Gomes, London. Index Publishers (Dunstable) Limited, 69, Victoria Street, S.W.1. Price 2s. 6d.—The firm of Index Publishers (Dunstable) Limited which has been engaged in the production of local timetables for half a century has brought out the first edition of what may be claimed to be the most comprehensive road passenger transport guide yet published. It is intended to bring out successive editions twice a year. The guide contains much information well set out; of particular value is the index showing fares between any two points, and not from termini only. There is a folding map showing the territories of bus and coach operators, reproduced from *The Railway Gazette*.

British Railways Class "4" Standard Locomotives

Designed for operating over main and secondary lines with maximum availability

THE smaller of the two 4-6-0 mixed-traffic locomotives among the six standard types to be built this year is under construction at the Swindon Works of British Railways, and the first of these, No. 75000, has just been completed. The locomotives, 20 of which are being built in the 1951 programme, will be allocated to the Western and London Midland Regions, and have been designed and built under the direction of Mr. R. A. Riddles, Member for Mechanical & Electrical Engineering, Railway Executive. The parent office for the design of this class is Brighton, although certain sections were designed at Swindon, Derby, and Doncaster.

The design is similar in many respects to the new Class "5" 4-6-0, but it is a lighter engine, having almost universal availability over main and secondary lines throughout Britain. This type of

locomotive is intended for duties, amongst others, of the kind which are at present worked by obsolescent locomotives of the 4-4-0 wheel arrangement.

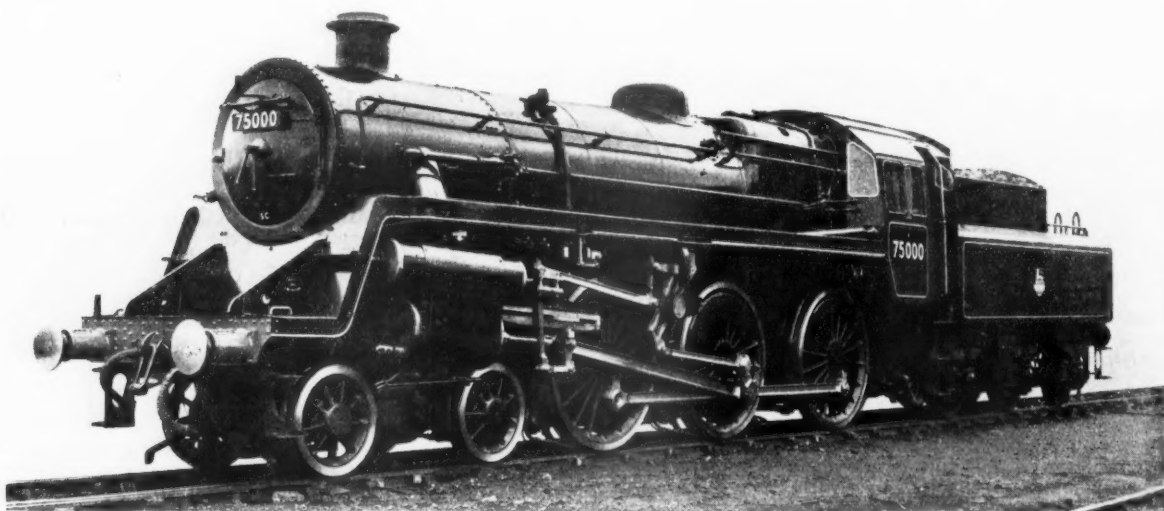
The leading dimensions are as follow:—

Cylinders, dia. and stroke	18 in. by 28 in. stroke
Wheels, coupled, dia.	5 ft. 8 in.
Wheels, tender, dia.	3 ft. 3½ in.
Wheels, bogie, dia.	3 ft.
Wheelbase, coupled	15 ft.
Wheelbase, engine	26 ft. 9 in.
Wheelbase, engine and tender	50 ft.
Heating surface:	
Tubes	1,301 sq. ft.
Firebox	143 sq. ft.
Total evaporative	1,444 sq. ft.
Superheater	265 sq. ft.
Grate area	26.7 sq. ft.
Boiler pressure	225 lb. per sq. in.
Tractive effort	25,100 lb.
Adhesion factor	4-6
Weight of engine in working order	67 tons 18 cwt.
Weight of engine and tender in working order	110 tons 1 cwt.

The boiler follows closely the design of that of the L.M.R. Class "4" 2-6-4

tank locomotive, except that the barrel is increased in length by 9 in. The same flanged plates are common to both, but as the boiler pressure has been increased from 200 to 225 lb. per sq. in., the staying has been redesigned. The boiler shell is of ordinary quality steel plate, the barrel consisting of two rings, the second of which is tapered. The plate from which the barrel rings are rolled is ⅝ in. and ¾ in. thick respectively, the outside diameter being 4 ft. 9 in. at the front and 5 ft. 3 in. at the firebox end. The smokebox tubeplate is of the drum-head type, ¼ in. thick, and there are 21 large flue tubes 5½ in. dia. outside, 7 s.w.g. thick, and 157 small tubes 1½ in. dia. outside and 12 s.w.g. thick. The length between tubeplates is 13 ft.

The firebox is of the Belpaire type, and is 8 ft. 6 in. long at the bottom, with an outside width of 4 ft. 0½ in.,



British Railways Class "4" standard locomotive for main and secondary lines

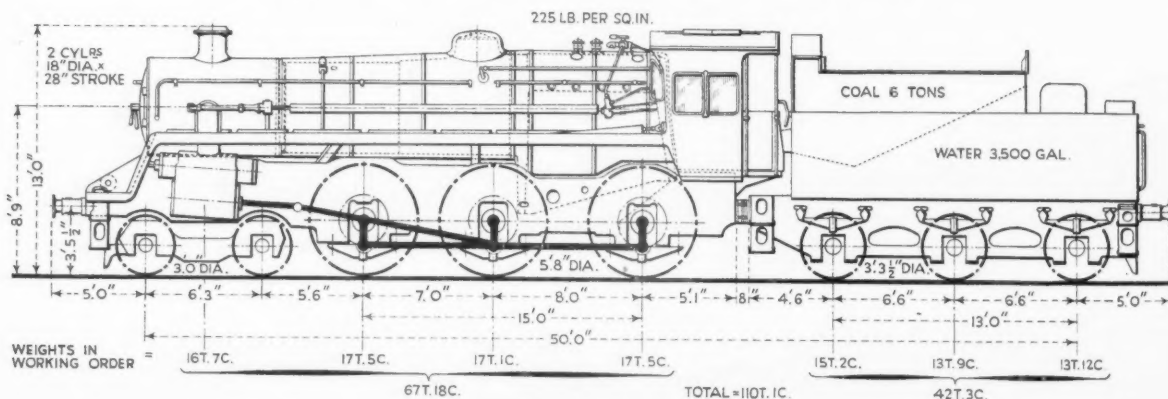


Diagram showing principal dimensions and weights of the locomotive

going a grate area of 26.7 sq. ft. The steel wrapper plate is $\frac{3}{8}$ in. thick and the wrapper plate of the copper inner firebox is $\frac{1}{2}$ in. thick. The throat plate is vertical and the back plate is of the sloping type. The copper tubeplate is $\frac{1}{2}$ in. thick.

All the firebox water space stays are made of Monel metal fitted with steel nuts inside the firebox, while the roof, longitudinal, and transverse stays are of steel. The lagging of the boiler and firebox consists of asbestos mattresses.

The rocking grate, self-emptying ashpan, and controls are similar in design to the Class "5" standard locomotive. The boiler mountings, regulator, clack valves, manifold, and so on, are also of similar design, as is also the cylindrical smokebox and self-cleaning arrangement. A single-note whistle is fitted. The blast pipe has a plain circular cap $4\frac{1}{2}$ in. dia., and this contains also the four nozzles of the Cardew blower.

Frame Design

The design of the engine frame, including the method of staying axlebox guides, fabricated dragbox, boiler securing, and springing arrangement, is somewhat similar to that obtaining in the Class "7" and Class "5" standard locomotives. The distances between the driving and trailing wheels of the Class "4" locomotive is 8 ft., which

is 6 in. less than the Class "5" engine; the coupled wheels are also 6 in. less in diameter on tread, being 5 ft. 8 in. dia. compared with 6 ft. 2 in.; the bogie and tender wheels are similar in diameter.

Other similar design features include the piston, crosshead, slidebars, method of lubrication, and sanding arrangements. The bogie and cab follow the design adopted as a standard for British Railways tender engines, as is also the reversing gear.

The engine is fitted with plain bearing axleboxes to all wheels. The coupled wheel axleboxes are steel castings with pressed-in white-metal horseshoe brasses. They have sliding underkeeps of ample oil capacity with pad lubrication and the underkeeps are supplied with oil direct from a mechanical lubricator. The bogie axleboxes are white-metal bronze castings; these are not mechanically fed.

The two cylinders, made of cast iron, are placed outside the frames and are 18 in. dia. \times 28 in. stroke; 10-in. dia. piston valves are provided, operated by Walschaerts valve gear, giving a full gear travel of $7\frac{1}{2}$ in. corresponding to a cut-off of 77 per cent. with a steam lap of $1\frac{1}{2}$ in. and lead of $\frac{1}{4}$ in. The piston head is of the box type, having two rings and a bronze spring-loaded slipper to minimise wear of the piston

head and cylinder barrel. The three-bar type of slidebars are provided in conjunction with an underhung crosshead. The reversing gear is of the same type as that fitted to the other British Railways standard tender engines. Steam-operated cylinder cocks have been provided.

The tender is of a smaller type than that fitted to Class "6" and "7" 4-6-2 locomotives and Class "5" 4-6-0, but in other respects follows the same pattern. The tender water capacity is 3,500 gal. and that for coal is six tons. Steam brakes are provided on both engine and tender.

Principal Contractors

The following is a list of the principal suppliers of equipment for these locomotives:—

Vacuum brake ejector, driver's brake valve, graduable steam brake valve, and associated brake details	Gresham & Claven Limited
Roller-bearing axleboxes on tender	British Timken Limited
Self-aligning ball bearings for valve gear return cranks	Skefko Ball Bearing Co. Ltd.
Reverser transmission shaft	Hardy Spicer & Co. Ltd.
Buffers	Geo. Turton, Platts & Co. Ltd.
Asbestos mattresses	Cape Asbestos Co. Ltd.
Manually-operated blowdown valve	Everlasting Valve Co. Ltd.
Mechanical lubricators for cylinder and axlebox lubrication, atomisers and check valves	Gulf Oil Co. (Great Britain) Ltd.
Superheater elements	Superheater Co. Ltd.

New Stock for Wuppertal Suspension Railway

This unique 50-year-old line is being equipped with modern high-capacity cars

THE Wuppertal Suspension Railway, which, as stated in an editorial in our March 9 issue, is celebrating its fiftieth anniversary, is receiving 20 new all-steel cars, to be formed into two-car sets, of which the first is in service.

Because of strain to the superstructure

during the 1914-18 war and the boom years 1926-29, and heavy damage between 1943 and 1945, the running of three-car trains had to be suspended. Regulations forbade overcrowding, and queues at the main stations on the railway became prevalent.

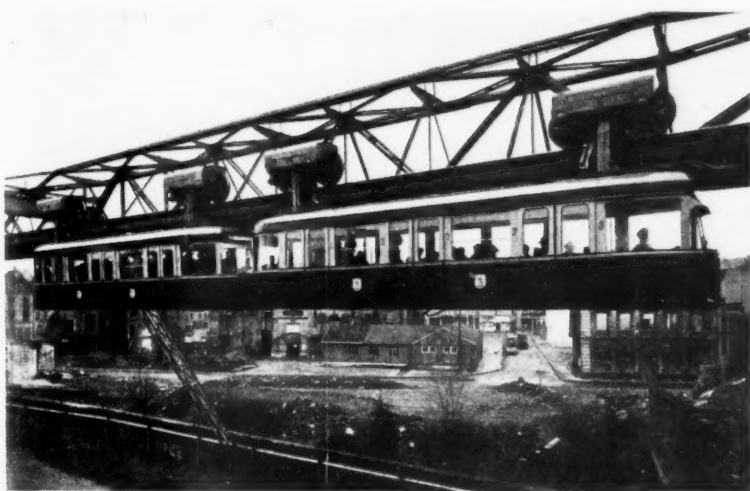
It was therefore decided to introduce stock of greater capacity but lighter in weight, and a contract was placed with Vereinigten Westdeutschen Waggonfabriken, Cologne, and Siemens-Schuckert.

The cars consist of a frame of pressed profiles with lightweight panelling, welded throughout. The tare weight is only eleven tonnes, allowing overcrowding when necessary; 80 passengers may be accommodated, compared with 68 in the existing cars.

Interior Features

Each car has a second and third class saloon; access to the former is by one door only, but there are two doors to the latter. A sliding door separates the two saloons. There are upholstered seats for three passengers each, on the inner side. Doors are operated by compressed air, controlled by the driver; the dead man's handle operates only when all doors are closed. One axle of each bogie is driven by a 45-kW. motor through a worm gear which makes running almost noiseless.

All the former cars, except two, are in service. When all twenty new cars are in use, the railway will be able to cope with all traffic demands for many years.



Lightweight stock in service in Wuppertal

Progress of New Woodhead Tunnel

Stages on the construction of the new Pennine tunnel on the Manchester-Sheffield main line



View in the tunnel looking towards the Woodhead portal

BRIEF editorial reference was made in last week's issue to the visit of representatives of the technical press to the new Pennine tunnel between Dunford Bridge and Woodhead on June 19. The party travelled by train from Manchester to Dunford Bridge, and thence by road to both portals of the tunnel, and the intermediate ventilation shaft, to inspect the works in progress.

The existing twin tunnels carrying the main line from Manchester to Sheffield through the Pennine Range are 3 miles 13 yd. long, and were built between 1839 and 1852. The first bore took six years, and the second five years to complete. The age of these works has made their maintenance both costly and uneconomic, and powers for the construction of the new bore were obtained in 1947, by the former London & North Eastern Railway. The new tunnel is associated with, but not actually occasioned by, the electrification of the railway from Manchester to Sheffield, and Wath, which was authorised before the outbreak of the second world war.

The new tunnel is situated about 100 ft. south of the centre line of the existing westbound tunnel. It will carry a double track, and will be straight except for a 40-ch. curve, about 600 ft. long, at the western end. The first mile from Dunford Bridge will be on a rising gradient of 1 in 1,186, and the remainder on a gradient of 1 in 130, falling towards Woodhead. The total length of the bore will be 3 miles 59 yd.

The general scheme for the tunnel was prepared under the direction of Mr.

J. I. Campbell, Civil Engineer, Eastern Region, British Railways. The detailed plans were prepared, and the conduct of the work on the site is being supervised by Sir William Halcrow & Partners, who are acting as Consulting Engineers; and Balfour Beatty & Co. Ltd.

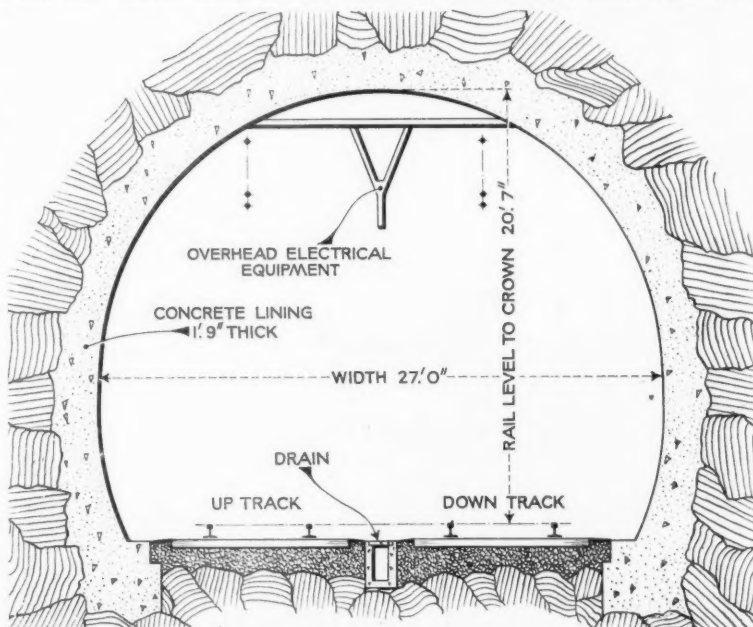
is the contractor for the execution of the works.

Preliminary work on the construction of the tunnel was begun in August, 1949, when the rock face at Woodhead was cleared, the portal opened and the pilot tunnel started. There is no approach cutting at this end of the tunnel, as the hillside rises steeply from the bank of the River Etherow, which passes under the railway at this point. At Dunford Bridge, the position was more difficult, as the tunnel entrance is 60 ft. below ground level, and some 80,000 tons of soil and rock had to be removed from the new approach cutting before tunnelling could be started. The portal was opened, and the pilot tunnel begun in November, 1949.

Pilot Tunnel

The work of sinking a construction shaft at a point approximately midway between Woodhead and Dunford Bridge was begun in June, 1949, and tunnel level, some 467 ft. below, was reached in the early summer of 1950. The driving of pilot headings towards each end of the tunnel was then started from the bottom of the shaft. The walls of the shaft are lined throughout with concrete.

The section of the pilot tunnel driven from the foot of the shaft and that made from Dunford Bridge were joined in April of this year, with an error in alignment of only $\frac{1}{4}$ in. When the heading driven westward from the ventilating shaft met the pilot tunnel from Wood-



Cross-section of the completed tunnel



Interior of Post Office at the camp at Dunford Bridge

head, on May 16, the error in alignment was $\frac{1}{2}$ in. The shot for the final breakthrough was fired by Mr. J. C. L. Train, Member of the Railway Executive for civil engineering, at a ceremony described and illustrated in our issue of May 25.

The tunnel passes through a sandstone formation, and is being excavated by blasting. Bands of shale in the sandstone, and faults in the strata, caused some difficulty, and much of the pilot tunnel has been lined with steel ribs. One of the fault zones occurs about 1,000 yd. from the Dunford Bridge portal; another is encountered before the ventilating shaft is reached; and there is a third about 500 yd. west of the shaft. Water in considerable quantities was struck about a mile from the Woodhead end of the tunnel, at a junction between the sandstone and the shale. No serious trouble was experienced, however, and the rate of flow has now been reduced considerably. Water in small quantities was found at other points, and its disposal presented no difficulty.

The pilot heading is 12 ft. square, and the floor is about 6 ft. above the invert of the completed tunnel. It is now being enlarged to the full section, 31 ft. wide and 24 ft. high. The tunnel is to be lined with concrete throughout, and it is expected that this work will be begun early in the autumn of this year.

The excavation of the full-size bore is being carried out from both ends of the tunnel, and is proceeding at the rate of 30 to 40 ft. a week, but progress will be more rapid when the arrangements for disposing of the spoil to tips have been completed. The width of the tunnel allows three lines of narrow-gauge tracks to be laid for the passage of the skips. These tracks are spanned by the gantry on which the drills for boring the blasting holes are mounted. Lifting gear on the under side of the

gantry enables a loaded skip to be raised clear of the track while an empty skip is moved forward. It is then lowered back to rail level, to take its place in the train. This arrangement results in a considerable saving of time in the removal of the spoil. The trains of skips are shunted in and out of the tunnel by electric battery locomotives, which in

normal service require charging every 24 hours. The isolated situation of the tunnel, in the heart of the Pennines, nearly 1,000 ft. above sea-level, necessitated the provision of adequate housing accommodation for the workmen. A site was selected on the open hillside at Dunford Bridge, and a contract for the design and supply of pre-fabricated timber buildings was placed with the firm of F. & H. Sutcliffe Limited.

Camp at Dunford Bridge

The construction of the camp was begun in April, 1949, and, notwithstanding the initial difficulty of providing accommodation for the men engaged in this work, several dormitories, the main dining hall, and the kitchen had been erected by the autumn of that year, and a sick bay provided and staffed. While the foundations were being laid and concreted, roof trusses and sections of buildings, which required only assembly at the site, were being manufactured and prefabricated at the Sutcliffe works. One of the requirements of the contract was that all the buildings should be capable of being dismantled after the opening of the tunnel.

The camp was completed in May, 1950, and provides accommodation for 1,000 men, although only about 700 are employed at present. The final scheme included semi-detached bungalows, with bathrooms and fitted kitchens, for families, dormitories and ablution buildings



Drilling gantry in the full-size tunnel, and the skips for removing the excavated rock



Woodhead portal of the new tunnel, showing the temporary concrete arch and the excavation for the footings

for other workers, staff quarters, a medical inspection hut and sick bay, offices, and a large garage. There are also rest rooms, a cinema seating 200, an inn, and a post office. The weather conditions on such an exposed site are exceptionally severe. Winds of gale force, accompanied by heavy rain, frequently blow for days on end, but the timber buildings have withstood this gruelling test more than adequately.

Progress of Electrification

Other works in connection with the new tunnel comprise the reconstruction of Woodhead, and Dunford Bridge stations, at the Manchester and Sheffield ends of the tunnel respectively, and the construction of new rail and road bridges. The old pseudo-gothic station buildings on the down platform at Woodhead are being demolished, and a new house has been provided for the stationmaster. All these works are proceeding simultaneously with the construction of the tunnel. It is expected that the tunnel and its approaches will be opened early in 1953.

Considerable progress had been made with the electrification of the railway from Manchester to Sheffield, and Wath, by September, 1939, but the works were suspended during the war years, and it was not until late in the summer of 1947 that the Minister of Transport approved their resumption. The overhead structures, and concrete posts and ducts for

the cables have been completed for several miles, and some sections of the overhead conductors have been erected.

At Thurgoland, between Penistone and Sheffield, the clearances in the existing double line tunnel were insufficient for the overhead equipment for two tracks, and a new single line tunnel, 330 ft. long, was built for down trains, and opened on October 3, 1948. The up line has now been slewed into the centre of the old tunnel.

Many of the masonry arch bridges over the railway had insufficient clearance for the overhead equipment. This difficulty has been met, in some cases, by lowering the track, and in other by the replacement of the arch by a bridge of the flat-deck type. Forty-four of these bridges are to be so altered or reconstructed. Of that number, 22 are to be reconstructed in pre-stressed concrete, as additional headroom can be provided only by reducing the constructional depth. In some cases provision has been made for raising the bridge to counteract the effects of colliery subsidences. These works were described in our issue of February 24, 1950.

A distinguishing feature of this electrification scheme is that electric traction will be used for all types of traffic, and this will be the first British example of a completely electrified main line. The new tunnel at Woodhead, the most outstanding civil engineering work associated with the electrification, is the longest tunnel built for a British main-line railway during the present century.



The western portal of the new tunnel, near Dunford Bridge Station

Bridge Re-Girdering on the Illinois Central

To modernise an important structure at Cairo on the Ohio River, the larger spans are being erected on an ingenious arrangement of falsework

THE original Chicago-New Orleans main line of the Illinois Central Railroad crossed the Ohio River at Cairo just above its junction with the Mississippi, where the States of Illinois, Missouri, and Kentucky meet. The single-line bridge as built in 1887-89 was two miles long, but in 1905-06 some of the approach spans were replaced by double-line embankment, so that today its length is 7,865 ft. In 1934 the remaining approach spans were renewed, but in 1950 all the original main spans, though strengthened in 1914, were still

passes under the three existing landward or southern 400-ft. spans, they are being replaced by six deck truss spans, and three new piers are being constructed to carry them; four other piers are being modified.

Girder Changing

Work in replacement of the through spans is now in hand serially from north to south in the following manner. In place of the two old 518-ft. 1,100-ton Whipple truss spans, new 1,650-ton through spans of substantially the same length are being erected on falsework alongside the old spans. This falsework consists of two of the six new 197-ft. deck truss spans, which are to replace the three 400-ft. through spans. Each of these deck spans was first erected on two specially-designed tower trestles, one carried by each of two barges lashed together 74 ft. apart, centre to centre. As well as being suitably strengthened, each of these spans had added to it a triangular extension to provide additional length for the erection of the 518-ft. spans, as shown in the accompanying illustrations.

On the downstream side of each successive through span to be changed, a

temporary single-bent trestle pier is erected at mid-span. The two deck spans are then successively floated out on the barges and lowered into place back-to-back, with the feet of their triangular extensions bearing on the base of the temporary pier, and their outer ends supported by staging erected beside the masonry piers. Each temporarily-modified deck span thus forms half the falsework for the erection of a new through span.

Adjustable Floating Staging

As there is a 47-ft. normal and a 58-ft. maximum annual rise and fall in the river level, and as change in level is sometimes at the rate of 3 in. an hour, the tower trestles on the barges had to be designed for considerable adjustment in height. Major adjustment is effected by putting in or removing sections of the four corner posts of the towers, but precision adjustment is obtained by mounting each corner post on a 500-ton jack, of which eight were required, four on each barge, to lift or lower each deck span. These jacks have a lifting travel of 2 ft. 1 in.

Once the falsework is in position a locomotive crane is traversed across

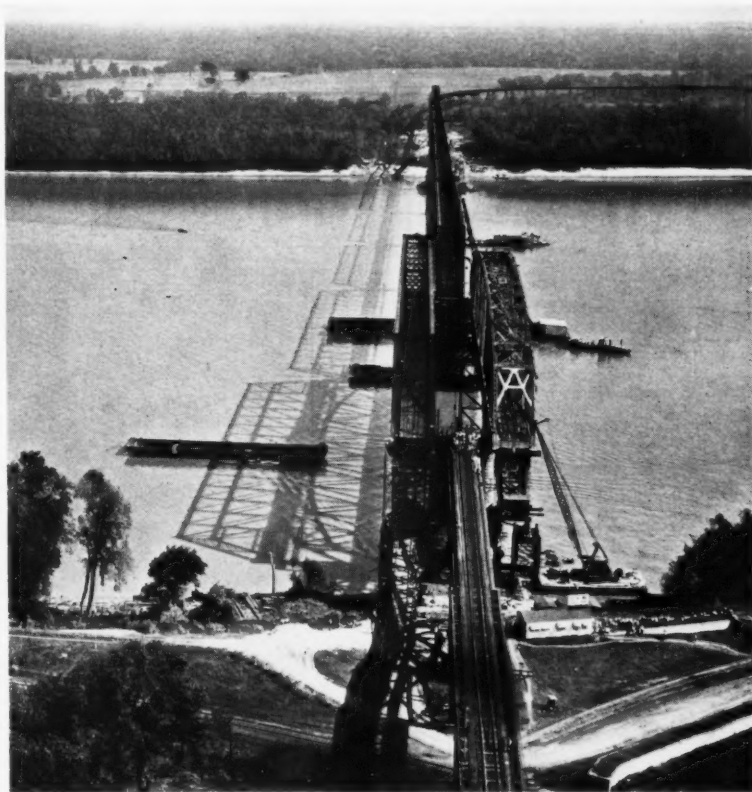


Sketch map showing position of bridge and cut-off from Edgewood to Fulton using the Metropolis Bridge

in use. They were, however, unable to carry modern locomotives and were deteriorating rapidly under the strain of heavy war and post-war traffic. Accordingly, a sum of \$6,300,000 is being spent in replacing the main spans and certain other improvements.

The bridge as it existed before October, 1950, consisted—from north to south—of three approach spans, one 256-ft. Pratt truss deck span, two 518-ft. and seven 400-ft. Whipple through truss spans, one 254-ft. Pratt deck span, and a number of other approach spans. The 12 new main spans now being installed are up to Cooper's E 72 loading.

Most of the piers are in good order, but three are having to be strengthened by driving steel piles round their caissons and jacketing the shafts with reinforced concrete. As only flood spill



A 61-year-old Whipple truss span rolled out on to staging on left, and new 1,650-ton span on falsework (right) ready to be rolled into place

from the track on to a temporary bracket at the northern end of each new main span, whence it works along the falsework to erect that span. When erection is complete and the track laid, the span is jacked up on to rollers. Meanwhile, stagings have been erected at the upstream ends of the piers to receive the old span, which is rolled out transversely on to them to make room for the new span to be rolled in on to the bridge centre line. The rolling of both old and new spans is effected by diesel-driven winches on a barge anchored upstream of the span, hauling through block and tackle. When the erection of all the through spans is finished, the two deck spans will be released for re-modification to their original design for erection in their permanent positions.

It is of interest to note that, as the old Whipple trusses were not considered worth dismantling, they are rolled out on to special launching beams on the caps of the staging. After the removal of the track and some of the decking, each span is released by the severing of a cable, to slide sideways and be launched into the river, 100 ft. below, there to be broken up as scrap.

The design and supervision of the work were entrusted to Messrs. Modjeski & Masters, Consulting Engineers, in conjunction with Mr. C. H. Mottier, Vice-President and Chief Engineer, Illinois Central Railroad, and Mr. M. Block, his Engineer for Bridges, according to our contemporary *Railway Age*.



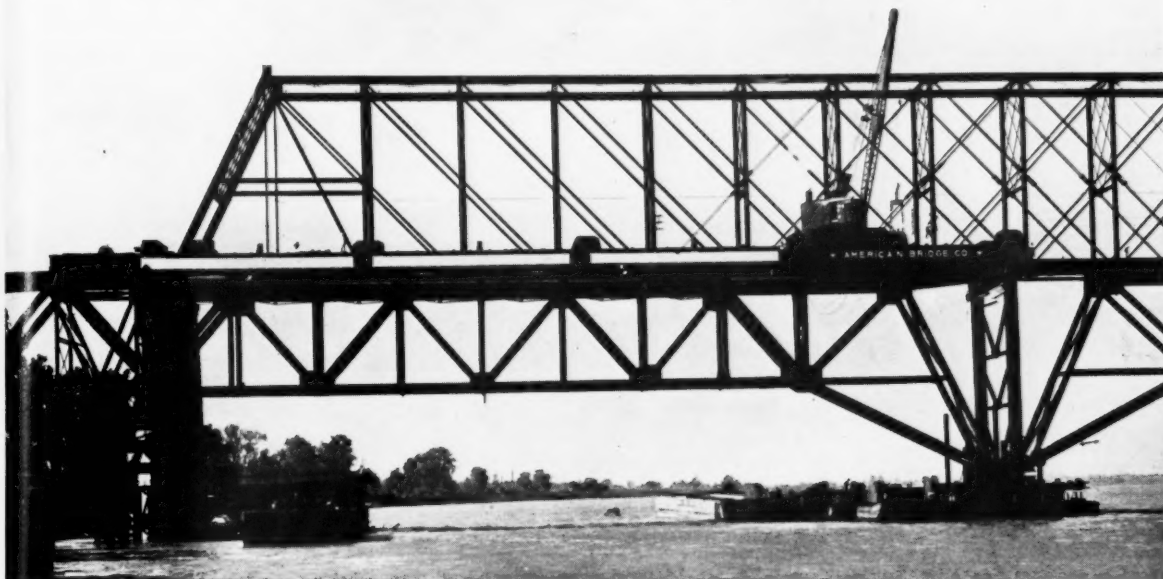
Whipple span launched from staging into river for scrap

British Railways "Britannia" Class Locomotive

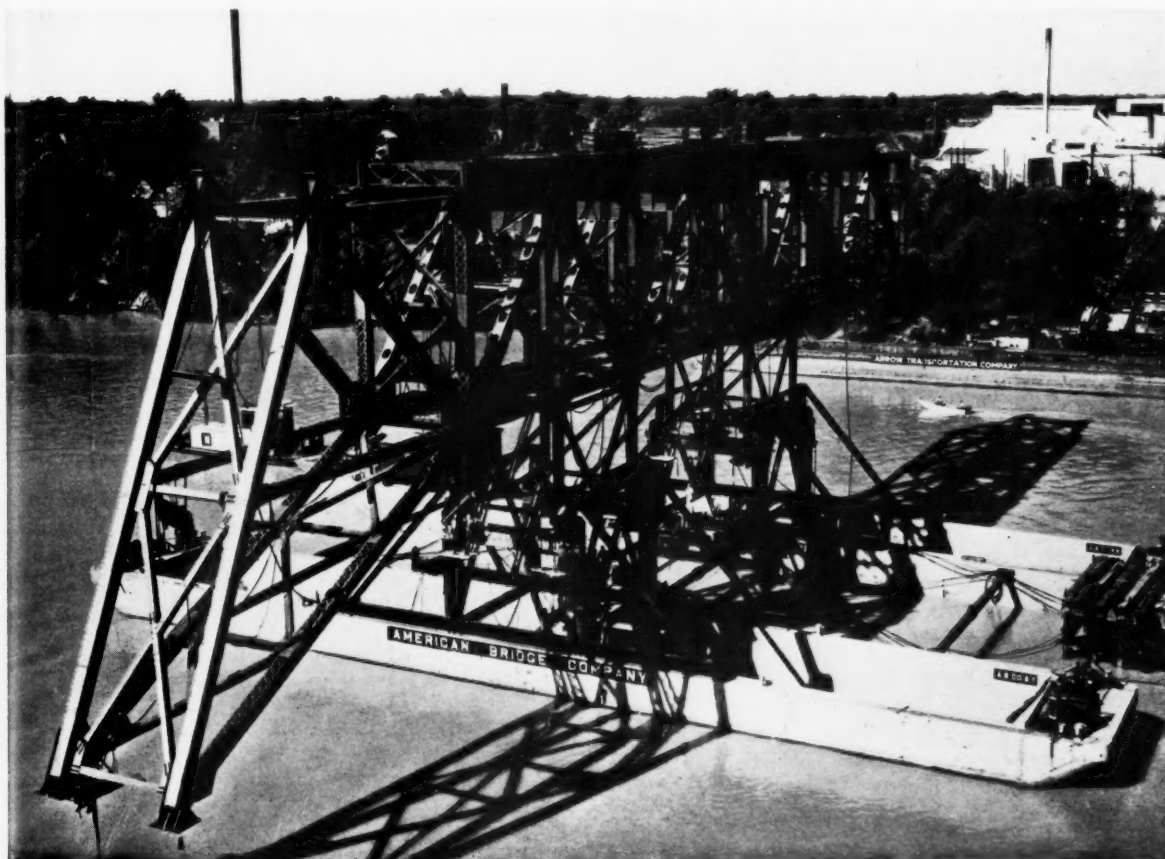


British Railways standard 4-6-2 locomotive "Alfred the Great" with the "Bournemouth Belle" at Waterloo Station

Bridge Re-Girdering on the Illinois Central



The two deck-truss spans in position back to back as falsework on which a crane is erecting the flooring on a new 518-ft. span; original Whipple span is seen behind



One of the twin deck spans with triangular extension erected on adjustable barge-carried staging ready to be floated out as half the falsework for erecting a 518-ft. span

New German Double-Deck Coaches

(See editorial note on page 714)



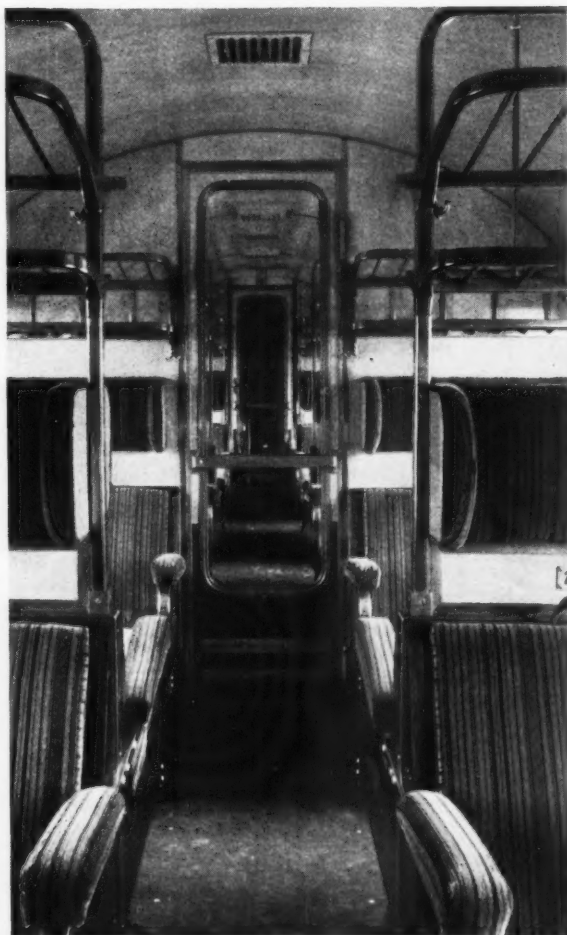
Photo]

Rubber corridor connection

[G. Leimbach



Three-coach set seating 260 passengers



(Left): Second class saloon; (right): Compartment over bogie, with stairs to lower and upper saloons

RAILWAY NEWS SECTION

PERSONAL

Mr. K. R. Ramanujam, General Manager of the South Indian Railway, has been appointed General Manager of the Southern Railway, India. He joined the Madras & Southern Mahratta Railway in 1922 as a probationer after graduating in civil engineering, and served as assistant engineer and then as district engineer. From 1945 to 1949 he held administrative posts as Deputy Chief Engineer and Deputy General Manager, and in May, 1949, was appointed General Manager of the South Indian Railway.

B.T.C. APPOINTMENTS

The following appointments have been announced by the British Transport Commission:—

Mr. S. B. Taylor, Deputy Secretary, has been appointed Chief Secretary to the Commission.

Mr. M. H. B. Gilmour, Chief Solicitor to the Commission, will assume the duties performed by Mr. Miles Beever as Legal Adviser to the Commission, and his title will now be Chief Solicitor & Legal Adviser.

RAILWAY EXECUTIVE APPOINTMENTS

The Railway Executive announces the following appointments:—

Mr. J. A. Broughall, Principal Assistant to the Executive Officer (Electrical Engineering New Works & Development) to be Executive Officer (Electrical Engineering New Works & Development), Railway Executive Headquarters.

Mr. A. Forbes Smith, Assistant Stores Superintendent, Eastern & North Eastern Regions, to be Stores Superintendent, Eastern & North Eastern Regions, Kings Cross.

Mr. W. O. Gay, Assistant Chief of Police, Eastern Area, Peterborough, to be Chief of Police, Eastern Area.

Mr. O. V. Bulleid, Chief Mechanical Engineer, Coras Iompair Eireann, has been elected an Honorary Member of the Institution of Mechanical Engineers.

Mr. E. P. Lumley, A.M.I.E.E., who, as recorded in our June 15 issue, has been appointed Divisional Depot Engineer "B" in the Running Division of the Department of the Chief Mechanical Engineer (Railways), London Transport Executive, is 35, was educated at Watford Grammar School and received his technical education at the Regent Street Polytechnic. He joined the District Railway as an apprentice in 1932 and was transferred to the technical staff in 1938. He was appointed Section Controller in 1941 and became a Depot Engineer in August, 1947. In November, 1947, Mr. Lumley was transferred to White City Depot and was responsible for the transfer of the depot maintenance work to the new depot at Ruislip on the opening of the Central Line extension. He became Acting Divisional Depot Engineer "B" in 1950.

Mr. Julian Seymour Tritton, M.I.C.E., M.I.Mech.E., M.I.Loco.E., M.Amer.S.M.E., who has been elected President of the Institution of Locomotive Engineers for 1951-52, is a Partner in the firm, and in charge of the Railway & Marine Department, London, of Rendel, Palmer & Tritton. He was born in Calcutta on October 31, 1889, son of the late Sir Seymour B. Tritton, K.B.E., with a long family connection with the Indian railways. Mr. Tritton was

During the recent war he was appointed Technical Adviser to the India Supply Mission in Washington in connection with Lend-Lease contracts for locomotives and rolling stock. He has always taken a great interest in internal-combustion engine design, particularly in connection with locomotive and railcar developments; and his paper on "Railcars" in 1934 won the Trevithick Award of the Institution of Locomotive Engineers. During the recent war he became Honorary Secretary of the Diesel Engine Users Association. Mr. Tritton is a member of many committees of the British Standards Institution. He gave the first Seymour Biscoe Tritton Lecture before the Institution of Locomotive Engineers in 1946, and was President of the Institution for the year 1947-48.

Mr. J. A. McIsaac, Manager of the Sleeping & Dining Car Department, Canadian National Railways, is retiring on June 30 and will be succeeded by Mr. H. B. Parr, at present Associate Manager of the Department.

Mr. Charles J. Hardy, senior has resigned as Director, Chairman of the board, and Member of the Executive Committee, of the American Car & Foundry Company. Mr. J. E. Rovensky has been elected as Chairman of the board and Mr. Charles J. Hardy, junior, as Chairman of the Executive Committee, combining that office with his present position as President.

Sir Arthur Matthews has retired from his position as Managing Director of Thos. Firth & John Brown Limited, and has been succeeded by Dr. Charles Sykes, previously Deputy Managing Director.

Mr. E. Havers, Assistant to Commercial Superintendent (Mineral), Western Region, British Railways, has been appointed to represent the Council of the Institute of Transport on the Transport Tutorial Committee. The Transport Tutorial Committee was formed as an independent body catering by correspondence courses for students and graduates.

Mr. C. T. Goodchild, who, as recorded in our May 25 issue, has been appointed an Officer of the London Transport Executive with the title of Work Superintendent (Aldenham), served his apprenticeship with the London & South Western Railway. He joined the London General Omnibus Company as a chargehand in 1919 and was promoted to assistant foreman in 1922. In 1925 he became responsible for all mechanical plant work in shops and garages and was promoted Section Engineer in 1934. In 1940 he was appointed Works Superintendent at the Chiswick aircraft factory of London Aircraft Production Group and two years later became Works Manager at its Aldenham factory. In 1945 he was appointed Assistant Plant Engineer (Buses & Coaches) and became Plant Engineer in 1947.



Photo

Lafayette

Mr. J. S. Tritton

President, Institution of Locomotive Engineers, for 1951-52

educated at Rugby School and King's College, London University. He served an apprenticeship at the Vulcan Foundry on locomotive work, with Sir W. G. Armstrong, Whitworth & Co. Ltd., on hydraulic and marine engineering, and with Willans & Robinson Limited (now part of the English Electric Co. Ltd.) at Rugby, on diesel engines and steam turbines. After a short period on the Continental inspection staff of Rendel, Palmer & Tritton, he joined the Bombay, Baroda & Central India Railway as Assistant Locomotive Superintendent in 1914, and was in charge of the Northern Division of that railway from 1915 to 1917. He was commissioned in the Royal Engineers in 1917, and, after a period of home service on special duty at the War Office, served in the 1918-19 Afghan Campaign. Mr. Tritton joined the technical staff of Rendel, Palmer & Tritton in 1920, and became a Partner in 1928. He was in charge of the firm's Calcutta branch from 1929 to 1932, and he is at present in charge of the Railway & Marine Department, London.



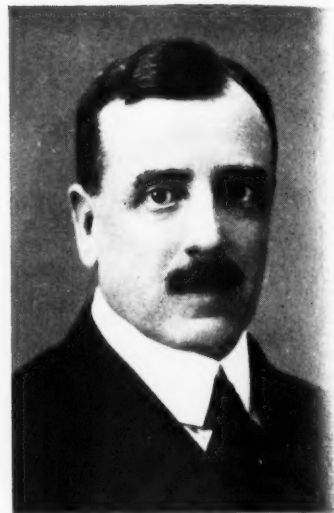
Mr. E. E. A. Muzzio

Appointed Chief of Traffic Department,
General Mitre Railway, Argentina



Mr. S. Russell

Appointed Carriage & Wagon Works Manager,
Stratford, Eastern Region



The late Mr. A. G. Hubbard

Solicitor, G.W.R., 1919-1940; Chief
Legal Adviser, G.W.R., 1940

Mr. E. E. A. Muzzio, Chief of Trains & Timetables Section, Operating Division, General Mitre Railway, Argentina, who, as recorded in our April 20 issue, has been appointed Chief of the Traffic Department, entered the service of the Central Argentine Railway in 1914 as a messenger at Rosario, and was subsequently employed in the goods, parcels, and claims offices at Rosario Central Station. After a further period of service he was appointed Secretary to the Chief of the Rosario District Train Control Office and later became Assistant Stationmaster at Rosario North. Shortly afterwards he was appointed Stationmaster, Rosario North, and before receiving his latest appointment had been Chief of the Trains & Timetables Section of the Operating Division in Rosario.

Dr. D. B. Foster, M.I.Mech.E., F.Inst.F., A.M.I.Chem.E., who has joined Mullard Limited as Chief Engineer of the Equipment Division, has also been appointed Executive Director of the subsidiary Mullard Equipment Limited. He studied electrical engineering at King's College, London. From 1929 to 1936 he served with the Western Electric Co. Ltd. on the development of electronic instrumentation in the field of acoustics, and from 1936-42 was with Vauxhall Motors Limited. In 1942 Dr. Foster joined the British Coal Utilisation Research Association as Assistant Director. He was transferred in 1944 to the Powell Duffryn organisation as the first General Manager of their London research laboratories, and was appointed a Director of Powell Duffryn Carbon Products Limited in 1950.

The British Transport Commission announces that Mr. L. C. Johnson, Registrar of the L.M.S.R. register of stockholders, has been appointed as Archivist, and Mr. J. H. Scholes as Curator. These two appointments, which take effect from July 2, follow the recommendations of the report of the Committee on the Preservation of Relics & Records. Mr. Johnson will be responsible for preservation and custody of all historical records, including early railway and canal minute books, and all important documents and papers meriting retention but not required for the cur-

rent business of the Commission and its Executives. Mr. Scholes will be responsible for organising the custody and display of old prints, pictures, models, rolling stock, typographical specimens, and other relics illustrating the history of public transport; one of his duties will be the establishment of a London collection of relics.

Mr. S. Russell, Technical Assistant to the Chief Mechanical Engineer, London Midland Region, Derby, who has been appointed Carriage & Wagon Works Manager, Stratford, Eastern Region, was educated at Derby Municipal Secondary School and Derby Technical College. He was a draughtsman in the Machinery & Plant Drawing Office, Carriage & Wagon Works, and Carriage & Wagon Rolling Stock Drawing Office, L.M.S.R., Derby, from 1935 until 1938, when he was placed in charge of the Tool Drawing Office of the Derby Carriage & Wagon Aircraft Section. Mr. Russell was appointed as Chief Inspector, Aircraft Contracts, Carriage & Wagon Works, Derby, in 1939 and he remained in this position until 1945, when he became General Assistant to Works Superintendent and later Assistant to Works Superintendent for Production & Planning, Carriage & Wagon Works, Derby. He was appointed Technical Assistant to the Chief Mechanical Engineer, L.M.S.R., Derby, in 1947.

Mr. John W. Porter, until recently engaged on engineering co-ordination for the electrification of the New Zealand Government Railways, has joined the General Railway Signal Company with headquarters in Rochester, New York.

Mr. W. A. Sycamore, M.I.N.A., M.I.Mar.E., who assumes the title of Defence Programme Manager of Davey, Paxman & Co. Ltd., undertakes the co-ordination of the firm's activities and all liaison with the Admiralty and other Government departments in connection with the National Rearmament Programme; Mr. H. V. Stead, M.Sc., is appointed Commercial Manager (Engines); Mr. H. P. Brown becomes Assistant Commercial Manager (Engines); and Mr. J. A. Bennett-Powell, A.M.I.Mech.E., Traction Sales Manager.

Mr. A. G. Hubbard, whose death at the age of 77 we recorded briefly last week, was Solicitor to the Great Western Railway from August, 1919, to September, 1940, and afterwards Chief Legal Adviser to the company until his retirement in December, 1940. He was educated at Tonbridge and, after serving his articles in Chancery Lane, passed his Law Final Examination in 1895. In the next January he began a six-months' pupillage at Paddington under Mr. R. R. Nelson, the Solicitor to the company, and at the expiration of that period was appointed an Assistant in the Prosecution & County Court Section of the Solicitor's Department. Later he was concerned with the more general work of the Solicitor's Office, and became thoroughly familiar with its various branches. During the first World War he dealt largely with matters arising out of the emergency legislation of those years, and in February, 1919, was appointed Principal Assistant to the Solicitor. In August of the same year he was appointed Solicitor to the company and continued to hold that position until September, 1940, when he became Chief Legal Adviser. Among the problems dealt with by Mr. Hubbard during his term of office as Solicitor were the assessment of compensation to the railways after the 1914-18 war, the release of the railways from Government control in August, 1921, the passing of the Railways Act, 1921, the acquisition of road powers in 1928, and the negotiations leading up to the passing of the Road & Rail Traffic Act, 1933. Mr. Hubbard retired from railway service in December, 1940.

We regret to announce the death on June 12 of Mr. E. A. Guthrie, Manager of the American Division of Metropolitan-Vickers Electrical Export Co. Ltd. He was born in 1892 and educated at Dublin, Liverpool, and the Manchester College of Technology. He joined the British Westinghouse Company as an apprentice in 1910, and passed through the motor, traction, and erection departments. After holding technical appointments in the service of Switchgear & Cowans Limited, and Ferguson Pailin Limited, he returned to Metropolitan-Vickers in 1920 as a switchgear engineer and some years later transferred to switchgear sales.

Mr. R. W. Jolley has been appointed Head of the Road Transport Allocation Section of the Commercial Advertisement Division, British Transport Commission, in succession to Mr. H. E. Moir, who retired in May.

Mr. I. G. Buchan has been appointed Chief Accountant & Local Director of Samuel Osborn & Co. Ltd.

Mr. A. B. Bowater, Personal Assistant to Mr. E. T. Hippisley, Manager of the Traction Department, British Thomson-Houston Co. Ltd., is retiring this month.

The Eastern Region has announced that Mr. G. M. Booth, Stationmaster, Liverpool Street Station, has been appointed Assistant District Operating Superintendent, Stratford.

TRANSPORT USERS CONSULTATIVE COMMITTEE

The Minister of Transport has appointed the Transport Users Consultative Committee for the South Eastern Area as follows:—

Mr. Maurice H. Pugh (Chairman), Senior Partner in a firm of solicitors; Member of the central governing body of the Association of British Chambers of Commerce.

Mr. G. E. Cumming, Member of National Farmers' Union H.Q. Glasshouse Committee.

Mr. C. T. Miller, Chairman of the County Potatoes & Vegetables Committee.

Lt.-Colonel C. W. Brannon, President of the Isle of Wight Chamber of Commerce; Member of the Transport Committee of the Association of British Chambers of Commerce.

Mr. R. J. Davie, Secretary of the Kent District Co-operative Council; Member of the Sheerness Urban District Council since 1946, at present Vice-Chairman.

Mr. R. S. S. Thomas, Chairman, Portsmouth District Committee, Regional Board for Industry; Managing Director, Bailey & Whites Limited.

Mr. Kaye Don, Managing Director of U.S. Concessionaires, Limited.

Mr. A. Dudley, Southampton Manager, Union Castle Mail Steamship Co. Ltd.

Mr. J. E. Brown, Full-time Branch Secretary, National Union of General & Municipal Workers.

Mr. G. H. Parks, District Secretary, Amalgamated Engineering Union.

Alderman Colonel Granville Walton, Member of the Berkshire County Council; Member of Faringdon Rural District Council.

Councillor Colonel the Rt. Hon. the Lord Basing, Member of the Dorset County Council.

Councillor A. Sykes, Member of the Surrey County Council; Chairman of Guildford Rural District Council.

Alderman B. Palmer, Chartered Accountant; Chairman of the Reading Transport Committee.

Alderman E. M. Ford, Hotel Proprietor. Mr. W. H. F. Mepsted, Commercial Superintendent, Southern Region, British Railways.

Mr. F. C. G. Mills, Divisional Manager, South Eastern Division, Road Haulage Executive.

Mr. C. W. G. Elliff, Commercial Superintendent's Office, Southern Region, British Railways, is the Secretary of the Committee.

One further representative of agriculture and two additional members to represent the travelling public are still to be appointed.

Institution of Railway Signal Engineers

Annual summer meeting at Derby

The annual summer meeting of the Institution of Railway Signal Engineers was held at Derby from June 1 to June 3. Mr. S. Williams, President, Signal & Telecommunications Engineer, London Midland Region, was supported by Vice-Presidents Mr. T. S. Lascelles and Mr. T. Austin; Messrs. F. Horler, R. Dell, and H. M. Proud, past-Presidents; Messrs. F. Burton, D. G. Shipp, W. Owen, M. Le Sueur, C. G. Derbyshire, and A. L. Mills, Members of Council; Mr. G. J. Dickin, Hon. General Secretary; Mr. B. Reynolds, Hon. Treasurer; and Mr. W. H. Challis, Hon. Secretary, General Purposes Committee, responsible for making the arrangements.

Arriving at Derby, the members visited the Research Laboratory and School of Transport of the Railway Executive, where in the former they saw equipment for analysing stresses by photo-elasticity and films illustrative of the general work, with special reference to tests on shock-absorbing wagons, the functioning of lamps on goods brake vans and axleboxes, and the locating of a particularly elusive failure of a rotary interlocking block instrument, followed by a demonstration of the effects of hammer blow on the running of locomotive wheels.

The travelling laboratory coach also was inspected and its uses explained, especially the measurement of stresses met with in rails and the effect of running over poor sleepers, together with the stresses produced in locomotive spring links. The construction and uses of strain gauges were considered and the research undertaken to find the cause of certain point operating failures in marshalling yards.

Wind tunnel tests on lamps and on the exhaust from diesel engines were described as well as an investigation into piston failures on some new designs of locomotive. An experimental speed recorder with printed record was on view and in the physics section the visitors saw the results of an experiment on the use of armoured glass in a banner signal. The laboratory is under the charge of Mr. T. M. Herbert.

Visit to School of Transport

At the School of Transport members were received by the Operating Assistant, Mr. J. C. Boustead, in the absence through illness of the Principal, Brigadier L. Manton. Parties were conducted over the premises, the tour including a visit to the large demonstration hall, which contains an extensive model railway, electrically worked and equipped with a variety of block and single-line instruments, enabling instruction to be given in running a complete train service to a timetable.

On June 2 a motorcoach tour was made from Matlock to Castleton, where lunch was taken, after which the visitors proceeded via Buxton to the works of the D. P. Battery Co. Ltd., at Bakewell, where they were received by Mr. J. Waddell, Chairman and former Managing Director, and the Principal Technical Officer, Mr. R. Thornhill.

At Derby an informal dinner was held. Mr. S. Williams presided, and the guests were Mr. L. P. Ball, Divisional Operating Superintendent, Railway Executive, Derby, and Miss Cramp, representing Brigadier Manton. Mr. Ball, proposing the toast of the Institution, said he was very glad to welcome the members, and to know that they had visited the school, which was originally established by the former

L.M.S.R. The school was being used now to train men from other Regions of British Railways. The layout was not supposed to be an ideal one; it had been planned to show students what problems they would have to deal with and for that purpose it was excellently arranged. He wished to pay tribute to the communications work of the signal engineers and their maintenance staffs. They greatly valued the facilities afforded for holding round-table conferences by phone between various centres.

Mr. S. Williams, responding, thanked Mr. Ball for his remarks. They all regretted the absence of Brigadier Manton and hoped that he would soon be well again; it was he who had built up the school. The whole meeting had been most successful, and they had to thank their officers, Mr. Dickin and Mr. Reynolds, and the General Purposes Committee, and its Secretary, Mr. Challis, for their organisation work. They must not forget also the kindness shown to them by the D.P. Battery Co. Ltd. and what Mr. T. C. Elliott had done in connection with their visit to the works.

The dinner was followed by an entertainment and on the next day a morning coach trip was made to places of interest in the neighbourhood of Derby.

EMU BAY RAILWAY CO. LTD.—The report of the Emu Bay Railway Co. Ltd. for the year ended December 31, 1950, shows a credit balance of £11,025, which, with the amount brought forward from the previous year, makes a total of £11,056.

IMPROVEMENTS AT LEICESTER MOTIVE POWER DEPOT.—London Midland Region of British Railways is to instal mechanical coaling and ash removing plants at Leicester Motive Power Depot which will enable the staff to deal more quickly and efficiently with the 79 locomotives maintained there. At present the coaling of locomotives and the removal of ash is done manually. Other improvements to be carried out include the installation of electric light in place of gas, additional buildings for offices and staff amenities, and the provision of a canteen. A better layout of the tracks in the depot yard will facilitate the movement of locomotives to and from the shed. Work will commence in six months time.

CONSERVATION OF SCARCE MATERIALS.—The Anglo-American Council on Productivity is shortly sending a special mission to the U.S.A. Scarce materials and their effective use are basic to the growing defence programme and this group is therefore going to the United States to explore the subject with engineering and allied industries with a view to making suggestions as to how British industry can use scarce materials in the strictest possible way. The following headings are suggested for the enquiry in addition to any others which may be proposed in the U.S.A.: Scarce materials substitution, emergency specifications and standards, direct economy measures, short-term alterations in design, simplification of product range to eliminate items using high proportion of scarce materials, factory reorganisation to ensure economy, and the possibilities of increasing co-operation between materials supplier and user.

Ministry of Transport Accident Report

*Hopworthy Crossing, Western Region,
British Railways: September 7, 1950*

Colonel R. J. Walker, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at 5.29 p.m. on September 7, 1950, at the Hopworthy Farm occupation crossing between Holsworthy and Whitstone & Bridge-rule stations, when the 5.8 p.m. train from Halwill to Bude, consisting of an "M7" 0-4-4 tank engine, running bunker first, and two coaches, travelling at about 50 m.p.h., ran down a farm tractor and trailer, killing instantly the father, mother, and sister of its driver. It was a fine day with a dry rail.

The line is single. It is open from 5.30 a.m. to 9.30 p.m. and carries nine up and nine down passenger trains daily, with eight freight trains or light engines. About 370 yd. on the Halwill side the line curves to the left and continues to do so for 300 yd. beyond the crossing. At the crossing it enters a shallow cutting, and an engineman's view of the down side, from which the tractor came, is obscured in such a way that neither the gate nor the approach to it from the fields can be seen. The front of a tractor standing inside the gate only comes into view at 170 yd. Speeds are relatively high and trains reach 50 m.p.h.

The crossing is of the usual construction, with gates opening away from the railway and kept padlocked; the approach on the down side is first parallel to the line and then turns sharply to the left. Both railway and crossing itself are out of sight to a person on the road until this turn is made. The cutting and some hedges prevent anyone crossing over from seeing up or down the line until he has passed through the gate and come well inside, when it becomes possible to see for 200 yd. in each direction. It was necessary, however, to move 11 ft. through the gate, bringing the front wheels 7 ft. from the rail before anyone in the seat of this particular tractor could obtain any view at all. Curvature and formation allow of a better view from the up side, but even this is obscured by hedges.

There are no lamps, signals, or warning bells, and no whistle boards on the line. There is a penalty board on each gate.

Evidence

The train left Holsworthy to time and about 100 yd. from the crossing the fireman saw the tractor emerge. He shouted and the driver braked at once, but the engine hit the tractor and trailer in the middle and stopped about 400 yd. further on. The former was completely demolished, its driver being thrown over into a field but only slightly hurt, while the trailer was cut in half.

The tractor driver said he had used the crossing frequently and knew it very well, including the times of the trains. When collecting harvest he might make a dozen round trips a day. He had driven this particular machine for over two years. He was about to cross to bring another load and went to start the engine. He thought that, as he did so, he saw a train go towards Bude. With his three relatives and a small boy he drove to the crossing and stopped at the gate. The boy jumped down to open it. (The up side gate was already open from the previous trip.) After that the boy went back to the field to deal with another gate and did not look along the line. He was proceeding across, look-

ing towards Bude and not paying much attention to the other direction, as he thought he had seen the train pass; his father shouted, but the engine was almost on them. The noise of the tractor engine, though not great, was sufficient to make it impossible to hear the train.

The tractor driver's uncle said he had not experienced trouble there but his brother-in-law had nearly been run down some years ago. His nephew knew the crossing well and was a careful driver. The family always had been particular about the way they used the crossing and in closing and locking the gates.

The statements of the train driver and fireman made it clear that they had no chance of avoiding the collision. The driver knew the line well and where the crossings were. It was not his practice to whistle before reaching them and he had never seen anything at this crossing before. The guard had been on the line for 15 years and knew the crossing well. He knew of no trouble happening there before. The gates were always kept locked and he had no complaints about the way in which the crossing was used.

The stationmaster at Holsworthy and others all confirmed this evidence.

Inspecting Officer's Conclusion

The accident was caused by the tractor driver's mistake in thinking this particular train had passed and moving over the crossing without assuring himself that it was safe to do so. Had he looked up and down the line after passing through the gate probably he would have seen the train which was, according to the evidence, less than 200 yd. away. Its driver had no chance of avoiding the accident, and the train crew did all that could have been expected. This crossing is undoubtedly dangerous because there are circumstances in which, although the parties concerned take every reasonable precaution, an accident is almost inevitable. It is only the small number of trains and the infrequent and intermittent use to which the crossing is put by the farm, and the fact that its users know the times of the trains, that explain why an accident has not occurred before.

Danger particularly applies to movements from the down side, as the road approach and the gate cannot be seen from an engine, and even a vehicle standing inside the gate cannot be seen until the engine is within 170 yd. of the crossing. To cross in this direction a tractor must first stop 9 ft. short of the gate to allow it to be opened, then proceed for another 20 ft. until the front wheels are only 7 ft. from the rails and stop again. This is the first position from which its driver can look up and down the line and then he can see only some 200 yd. each way. All may be clear and nothing be heard above the sound of his engine, so he starts to move.

Having once done so with a tractor and trailer 20 ft. long, he must move 40 ft. before he is safely over, which will take 7 sec. at 4 m.p.h. and if a train appears at 50 m.p.h. rounding the bend as the tractor is started it will take slightly more than 8 sec. to reach the crossing, the margin of safety being negligible. Posting another man on the far side gives a better view and slightly increases this margin, but the improvement is of no practical value. There

are in fact no reasonable steps which the crossing user can take which will really make its passage safe and certain.

Colonel Walker therefore recommends that negotiations should be opened with the owner to endeavour to obtain agreement to closure, which may be possible without seriously affecting the work of the farm. If this is not so, it will be necessary to provide a telephone before the crossing can be regarded as safe. In the meantime whistle boards should be erected at suitable distances from the crossing to give warning of an approaching train. It was only by good fortune that the train was not derailed, and the accident has once again drawn attention to the risks caused to rail traffic at such crossings by the increasing use of heavy agricultural machinery.

Permanent Way Maintenance in a German Tunnel

The longest double-track tunnel in Germany is the Kaiser-Wilhelm Tunnel between Cochem and Eller on the line from Koblenz to Trier, built in 1875-78. It is nearly 4,600 yd. long, and is on an incline of 1 in 200-300, overcoming a difference of 59 ft. Because of the heavy traffic on this line, the main route for coke traffic between the Ruhr, Luxembourg, and France, the tunnel is almost continuously filled with smoke, causing rapid deterioration of the permanent way, and making maintenance work particularly unpleasant and unhygienic.

It became a matter of concern to reduce the rate of deterioration, and facilitate and speed up the renewal of the rails when necessary. One obvious step, the introduction of forced ventilation to remove the smoke gases in the shortest possible time, was made in 1937, but the resulting strong and continuous draught is also an unpleasant feature.

Another, recently introduced, measure was the use of continuous-welded rails and highly mechanised relaying methods. Although the wooden sleepers, protected by a thick coat of grime, remain intact for many years, the effect on the rails of the smoke gases is such that they must be renewed every five years or so. After methodical temperature observations, which showed an almost constant temperature of the rails inside the tunnel, it was decided to use all-welded lengths of rails up to a length of 1,050 metres (3,445 ft.). The rails were specially manufactured without the usual drill holes for the fishplate bolts at the joints, so as not to weaken the cross-sectional area near the welding joints.

Transport of Welded Lengths

The welding of five 30-metre lengths into single 150-metre lengths took place outside the tunnel at Eller Station. To transport these lengths, a special device was adopted. For each length of rail, ten standard-gauge miniature trolleys (*Robel Kleinwagen*) were used. Each trolley supported a transverse channel iron 2½ metres (8 ft. 2 in. long), overhanging on both sides. At the overhanging ends, slots were provided to receive a stirrup which gripped the rail firmly and could be easily lifted by a jack screw so that the lifted rail did not foul the gauge. When the rail had been moved into the tunnel and unloaded there, the trolleys were all coupled and pulled out of the tunnel. All movements were carried out by a battery locomotive. The welding of the seven 150-metre lengths into a single 1,050-metre length was carried out *in situ*.

Elimination of Hand Barrowing

*Eastern Region adopts palletisation
for dealing with sundries traffic*

The Eastern Region of British Railways has introduced at Norwich Thorpe goods shed an adaptation of domestic palletisation for dealing with received sundries traffic. Though this method is already in operation where specialised traffic has justified it, the working at Norwich applies to miscellaneous sundries traffic with its multifarious shapes and weights.

The main object is to eliminate the manual barrowing of a small number of packages at one time between wagon and cartage berth. Pallet loads at least eight times that of the two-wheel hand-barrow can be moved by powered units with greater despatch.

The use of the mobile unit also provides a much greater degree of flexibility in dealing with variations in traffic flows. Considerable thought was given to the design of the pallet to avoid the additional time entailed in sorting and graduating packages to provide a stable load, and "bedstead" sides were designed for awkward loads.

Saving in Time and Labour

A daily distance of approximately 8 miles is covered by a power pallet truck in an 8-hour working day, with loads varying from 10 to 25 cwt. The experiment has demonstrated that domestic palletisation can economically be applied, other factors which have resulted being speedier discharge of wagons and distribution of traffic to cartage berths, the risk of splitting consignments is reduced, and traffic stacked on pallets gives more orderliness and space on the cartage front and facilitates checking and loading.

During the initial test comparative details ascertained were as follow:—

Average number of packages per hand barrow	2.4
Average number of packages per hand pallet	20
Percentage of total traffic palletised within goods depot	98.42
Percentage of total traffic unsuitable for palletisation	1.58

An extension of this method of working to other goods depots in the Eastern Region is proceeding.

The equipment now in use at Norwich Thorpe comprises 100 single-faced two-way entry pallets—size 48 in. × 42 in.; six pairs of "bedstead" sides made of 1½-in. tubing—size 43 in. wide and 42 in. high—fitting in sockets on pallets to a depth of

4 in. and cross-strutted at 12-in. intervals; four Lansing Bagnall power pallet trucks, two of which are pedestrian controlled (for short runs); and two rider controlled (for long runs). The capacity is 4,500 lb. each.

Rail Flaw Detector Cars

The use of rail flaw detector cars has now become standard American permanent way practice, and certain United States railways are building and equipping their own cars to permit more frequent patrolling of their tracks. Although the detection of transverse fissures becomes by degrees less frequent as more controlled-cooled rail is laid in, other types of defect, such as shelling, gauge corner checking, vertical and horizontal split heads, and engine burns caused by slipping, still require detection. The latest Union Pacific detector car can detect internal defects as small as 5 per cent. of the rail head area.

The detecting apparatus operates on the sustained magnetic field principle, as opposed to the electro-inductive method hitherto most widely used. Twelve powerful electro-magnets are mounted on three special trucks under the centre of the car; these are supported on wheels of stainless steel to withstand wear. Behind the rear magnets there ride the pick-up coils, the flow of electricity through which from the magnets is distorted by any internal irregularity in the steel. The small voltage so generated in the rails, suitably amplified, causes a pen to mark a moving paper tape and a paint gun to mark the foot of the rail at the affected point.

Pick-up Coil

The pick-up coil is a shoe which incorporates five separate coils. One of these operates at a low sensitivity and functions only at rail joints. The other four are spaced evenly across the rail head to detect defects with equal accuracy in the centre of the head and at the outer corners. Each of these coils actuates its own amplifier and pen, so that five pens in all are recording on the roll.

A special feature of the Union Pacific car consists of a "growler" unit, situated

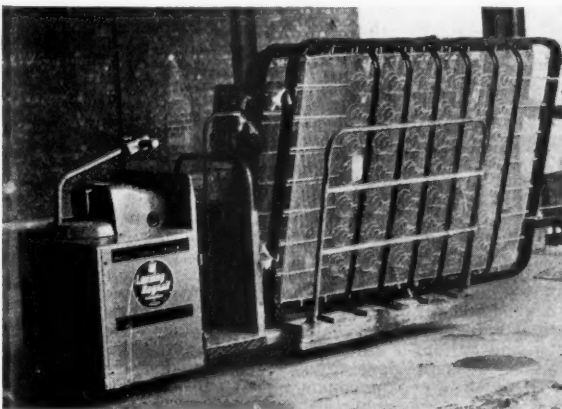
just ahead of the pick-up coils; this unit, operating on 800-cycle a.c., is intended to demagnetise the top $\frac{1}{16}$ in. thickness of the rail head, so that the minor surface blemishes that give much trouble in rail defect detection may not actuate the recording pens. Following the pick-up coils is another "growler" unit of greater capacity, installed to restore the rails to their original condition after the vehicle has passed. The magnets in their operative position ride $\frac{1}{16}$ in. above the rail head, but can be raised to $2\frac{1}{2}$ in. above the rail when out of action.

The 73 ft. vehicle which was converted to a detector car originally was a petrol-electric railcar, of which the power plant has been retained. Little alteration was required, except some strengthening of the underframe to carry the 100 h.p. auxiliary engine which drives the generating equipment for the detectors. This comprises a 110-volt d.c. generator, from which the magnets draw about 40 amp., and a special 4 kW. 800-cycle a.c. generator for the "growler" units. The auxiliary engine also drives a 60-cycle a.c. generator and an air compressor. When hand tests are required to supplement the automatic recording, power is drawn for the purpose from the main generator.

Speed of Tests

The testing speed of the car is 8 m.p.h.; when not testing the car can propel itself at 45 m.p.h. In normal conditions, 35 miles of track can be tested daily, and the Union Pacific now has sufficient detector cars, each of which covers 25,000 miles a year, to patrol its main lines every five weeks if necessary, and minor and branch lines at less frequent intervals. The car has kitchen, dining, sleeping, shower-bath, and workshop facilities for its crew, and thus is completely self-contained. We are indebted to *Modern Railroads* for the foregoing particulars.

FOSTERING NATIONAL SAVINGS.—An appeal to British Railways employees to revive old and foster the formation of new National Savings Groups is contained in two new posters and leaflets distributed by the National Savings Movement. Posters suggest possible personal savings objectives and the leaflets outline three easy schemes for saving. This appeal has the support of the Joint Advisory Council for Welfare and at the same time the Railway Executive has agreed that adequate facilities will be given for the operation and development of groups.



Typical examples of awkward loads handled by power pallets at Norwich

Buffer Shunting Tractor for Railway Wagons

Designed with independent rear-wheel braking



Shunting tractor with buffer beam in contact with wagon buffer

A development of a buffer shunting tractor for railway wagons, designed originally by the Chaseside Engineering Co. Ltd. for use in private sidings, includes the provision of independent wheel braking. Two pedals are fitted on the left of the steering column and each pedal independently controls the braking of one rear wheel. Used in conjunction with the normal final drive, these pedals assist manoeuvring in confined space by reducing the turning circle.

An additional advantage is that the use of this wheel braking system enables the shunting tractor to cross the rails easily. The engagement of a simple lock enables both brakes to be applied with one foot. The independent braking system should not be used when the differential lock is engaged. A parking brake, of the multi-plate disc type, running in oil and acting on the transmission, is fitted in addition to the foot brake.

To enable the maximum use to be made of the independent rear-wheel braking, the clutch is operated by the driver's right foot. A single hand lever is fitted close to the operator's right hand to control the throttle. The throttle has the advantage of enabling the driver to maintain steady engine speeds when crossing railway tracks or manoeuvring on rough ground.

Towing Hitches

The tractor frame is of rolled-steel channel section which carries the mild-steel buffer plates. The front buffer measures 6 ft. 8 in. \times 1 ft. 10. \times 4 in. thick and the rear buffer is 6 ft. \times 1 ft. 8 in. \times 4 in. A front towing hitch can be mounted on the front axle braced to the front buffer plate mounting. The rear towing hitch is mounted on the transmission housing. A two-position jaw is provided, through which the towing pin passes, quick release being arranged by a spring-loaded pawl. Towing arrangement is optional.

Recently, this new design of shunting tractor was demonstrated at Boston Docks, Lincoln. With a Perkins P6 diesel engine a load of approximately 180 tons was shunted from the docks siding to a layby. It is claimed that the tractor can handle loads in excess of this figure on straight

level track. The tractor can be fitted with a diesel, petrol, or petrol/paraffin engine.

One of these tractors has been ordered by the Southern Region, British Railways, for operating in Hamworthy Goods Yard, and in this particular case is fitted with a Perkins P6 engine.

Questions in Parliament

B.T.C. Report

Viscount Long in the House of Lords on June 12 asked when the B.T.C. report and accounts 1950 might be expected.

Lord Shepherd in reply said: The Commission hopes that the report will be available in early July.

Helicopter Landing over Stations

Mr. G. Nabarro (Kidderminster—C.) on May 30 asked the Parliamentary Secretary to the Ministry of Civil Aviation whether there were any technical or economic obstacles to the creation of helicopter landing grounds, erected as superstructures to such main railway stations as New Street or Snow Hill in Birmingham or St. Pancras or Victoria in London, so as to obviate bus journeys from the centre of such cities to the present flying fields.

Mr. Frank Beswick (Parliamentary Secretary to the Ministry of Civil Aviation): We do not rule out the erection of superstructures over main railway stations. There are, however, constructional and other practical difficulties in adapting railway stations, and we have to bear in mind the economic claims of other types of elevated site.

Mr. A. C. Bossom (Maidstone—C.): Does not the Parliamentary Secretary agree that it would be much cheaper to put a superstructure over a railway station than to buy property to make a landing ground?

Mr. Beswick: There are a number of arguments about the matter and various suggestions in this connection are now being considered.

Mr. Nabarro: Can the Parliamentary Secretary assure the House that opposition from British Railways, because of the pos-

sibility of their losing fare-paying passengers, will not be allowed to hinder helicopter development?

Mr. Beswick: That seems to come rather within the category of hypothetical questions.

Railway Freight Traffic

Mr. Cyril Osborne (Louth—C.) on June 18 asked the Minister of Transport how much goods traffic was carried by the British Railways for the first six months of 1935, 1936, 1937, and 1938; and how many people were employed in these years.

Mr. Alfred Barnes: As the answer involves a number of figures I will circulate it.

Mr. Osborne: Why is it that the railways were not able to carry the traffic this year without having to interfere with passenger transport when, prewar, they could do that with less staff and carry more traffic?

Mr. Barnes: I would ask Mr. Osborne to look at the figures.

Later, Mr. Barnes circulated a reply which included the following figures:

FREIGHT TRAIN TRAFFIC

24 weeks to	Tons
June 15, 1935	125,621,068
June 13, 1936	130,975,435
June 12, 1937	138,340,397
June 11, 1938	130,135,931

PERSONS EMPLOYED

(Excluding staffs of ancillary businesses and London Transport)

Week ended	Number
March 9, 1935	532,421
March 7, 1936	538,134
March 13, 1937	549,912
March 12, 1938	556,978

He added: Close comparison would not be possible between the total figures of staff employed by the individual railway companies prewar and by British Railways today, as there have been changes in organisation and conditions of employment and in the method of computation.

Railway Police

Mr. David Renton (Huntingdon—Nat.-Lib. Con.) on June 18 asked the Minister of Transport whether he was aware that the railway police were the only police force in the United Kingdom which were not controlled either by a democratically-elected local authority or by a Minister answerable to Parliament; and whether he would introduce legislation to secure that the railway police would in future be controlled in one or the other of those ways.

Mr. Alfred Barnes: No. Railway police are not the only police force of this kind. There are similar police forces for docks and harbours. In the special circumstances in which they are employed these police forces serve a necessary and useful purpose and have been in existence for over 100 years. The control of police forces generally by a Minister or by local authorities is of a strictly limited character and the police are always ultimately responsible to the Courts.

Mr. Renton: The railway police are the second largest force in the country and have powers and responsibilities as great as the ordinary police. Both the public and the members of the railway police are anxious to see their status regularised by democratic control.

Mr. Barnes: I agree that they are the largest police force of this character in the country, but I am not aware that the public are uneasy about the form of control. This has existed for a long time, and there has been little difficulty, but the

matter is always open to review if public opinion were to change.

Sir David Maxwell Fyfe (West Derby, Liverpool—C.): If a Minister could answer for matters of importance, not of day-to-day administration, in the same way as the Home Secretary answers for matters of importance concerning a local-authority police force (to which he makes a certain grant) I am sure that that would calm some of the apprehensions expressed.

Mr. Henry Hopkinson (Taunton—C.): Is it not a fact that these officers attend the same schools and colleges, pass the same Civil Service examinations as officers of other forces, and are awarded the Police Medal, but, because they are not under the Home Office or any other Ministry, are still, after two years, being paid less than the members of other police forces in the country?

Mr. Barnes: That appears to me to raise issues other than that involved in this question.

Mr. John Hynd (Attercliffe, Sheffield—Lab.): As these policemen are mainly responsible for the operations of railway employees, is the Minister aware that no complaints about them by railway employees have been received in the last three years?

Mr. Barnes: I am aware of that, and also that there have been no complaints from the general public.

Heating Trains

Miss Irene Ward (Tynemouth—C.) on June 4 asked the Minister of Fuel & Power on what grounds April 24 was fixed as the day for issuing his instructions for cutting off heating; to what classes of undertakings these instructions were sent; and why decisions on a matter of that kind were not left in the hands of the managements of individual establishments.

Mr. Philip Noel-Baker: No such instructions have been issued by my Department.

Miss Ward: As April 24 was the date sent out by the Ministry of Transport to the railways by which to cut off all heating, did they in fact consult him?

Mr. Noel-Baker: It was entirely their decision. I gave them no advice at all.

Miss Ward: Did they not know anything about the shortage of coal?

Mr. Noel-Baker did not reply.

Rail Facilities in Queensland

Major John Morrison (Salisbury—C.) on June 15 asked the Minister of Food what reports he had received about inadequacy of the rail facilities which served the area of the Queensland British Food Corporation.

Mr. Maurice Webb in a written answer stated: There has been the fullest co-operation between the Queensland Railway Department and the corporation, and so far I have had no report of inadequate rail facilities. The nature of the corporation's present plans do not lead it to expect difficulties, other than temporary difficulties caused by the climate (including flooding) in moving their produce.

Steel Exports

Mr. Nigel Fisher (Hitchin—C.) on May 31 asked the President of the Board of Trade whether the Government would take steps to discontinue the export of steel, which was badly needed in this country, for the construction of railways in northern Persia.

Sir Hartley Shawcross: I do not think that in the present circumstances the action which Mr. Fisher suggests would be appropriate.

Mr. Fisher: Does not one of the railways

under construction actually link up with the Russian railway system; and is it not regrettable that our own steel, of which we stand in very great need for rearmament, may be used for conveying our own oil to our only potential enemy?

Sir Hartley Shawcross: I am, in conjunction with the Foreign Secretary, keeping a close watch on the position.

Parliamentary Notes

Investment in Public Utilities

The Chancellor of the Exchequer (Mr. Hugh Gaitskell) in the House of Commons on June 21 stated that total fixed investment in 1951, including defence investment, might amount to £2,230 million (in terms of the prices ruling at the end of 1950), compared with £2,162 million in 1950. This represented only a very small increase, and would be accompanied, as suggested earlier, by an actual decline in the amount of civil investment, which must be expected to fall still further in 1952 and 1953.

Within this total it was intended that investment in coal, electricity, gas, coke ovens, railways, roads, and petroleum would be higher than in 1950—in the first two cases substantially higher. The programme of new industrial building for manufacturing industry, other than the industries mentioned above, continues at about the same rate as in 1950, but some of the work will be on projects directly or indirectly related to defence.

Staff & Labour Matters

Engineers' Wage Claim

The National Committee of the Amalgamated Engineering Union at its annual conference last week condemned the recent wage increase of 1½d. an hour granted in the electricity supply industry and instructed its executive to apply for an increase in the rate by a further 1½d. to 3s. 6d. an hour for skilled workers, with proportional increases for certain others.

Earlier in the proceedings the conference passed a resolution reaffirming support for the principle of a new wage structure in the engineering industry. The union executive was instructed to pursue the principle to a successful conclusion in negotiation with the employers. The President of the A.E.U. told the conference that while profits in the industry and living costs continued to rise the union was bound to demand more pay.

Other engineering unions likely to press for wage increases after their annual conferences include the National Union of General & Municipal Workers.

Meanwhile the T.U.C. Special Economic Committee is trying to draft proposals for a new wages and prices policy to be considered by the T.U.C. Congress in September.

Order No. 1305

Progress is being made with the redrafting of Order 1305 which makes strikes and lockouts illegal. The chairman of the sub-committee advising the Minister of Labour has stated that the new order will shortly come before Parliament. It is understood that it will provide for retention of that part of the former order which compelled employers to recognise trade union agreements, and that the penal clauses will be omitted.

Contracts & Tenders

The General Electric Co. Ltd. is supplying 12,056 shoulder light fittings and their associated connecting sockets for new standard passenger coaches on British Railways. The fittings, which are being manufactured by the G.E.C. to the design of the Railway Executive, are die cast in a zinc-based alloy and finished matt chrome. Each incorporates a self-contained switch and local fuse.

It was recently stated by the Board of Trade Special Register Information Service that the United Kingdom Trade Commissioner at Johannesburg has reported a call for tenders by the South African Railways for the supply of flat-bottom rails and fishplates. The tender closes punctually at 9 a.m. on Thursday, July 12. Tenders must be enclosed in a sealed envelope, which must have inscribed on the outside: "Tender No. A.2599: For rails and fishplates." If posted, the envelope must be addressed to the Chairman of the Tender Board, P.O. 7784, Johannesburg, and must be despatched in time for sorting by the Post Office into P.O. Box 7784 before the closing time. Other arrangements have been made for deliveries made by hand and for tenders received by telegraph.

A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Commercial Relations & Exports Department (Industries Branch), Board of Trade, London, S.W.1.

A report from Pakistan shown in the Board of Trade Special Register Information Service states that the Ministry of Communications (Railway Division), Government of Pakistan, has issued a call for tenders for the supply of 872 metre gauge MCJ type covered jute wagons, dismantled and crated to the Pakistan Railways (E.B.R.). The wagons are to be complete with underframe, vacuum brake fittings, drawgear, buffing gear and painted to P.R.S. Specifications No. R-6-49 and particular specifications and drawings referred to therein. Wagons will be imported dismantled, crated and delivered F.O.R. Chittagong.

Copies of the tender documents and particular specifications can be obtained from the Office of the Director-General (Railways), Railway Division, Ministry of Communications, Karachi, on payment of Rs. 25 for each set. Copies of contract drawings can be obtained by direct application to Hodges Bennett & Co. Ltd., 59/60 Petty France, London, S.W.1, on payment of the cost of the drawings. Copies of the Conditions of Contract A-5(a)-50 and General Specification R-6-49 may be obtained on payment from the Manager of Publications, Government of Pakistan, Victoria Road, Karachi.

Tenders must reach the Office of the Director, Mechanical Engineering & Stores, Ministry of Communications, Railway Division, Government of Pakistan, Karachi, by 12 noon on August 4.

The Belgian State Railways have issued a call for tenders for the supply of electro-mechanical signalling equipment, according to the Board of Trade Special Register Information Service. Tenders should reach the Société Nationale des Chemins de Fer Belges, Direction du Matériel et des Achats, Bureau 26-51 (Section 9), 17 Rue de Louvain, Brussels, before 2 p.m. on July 4.

A copy of the tender documents (in French and Flemish) is available for inspection by representatives of interested United Kingdom manufacturers at the

Commercial Relations and Exports Department Industries Branch), Board of Trade, Thames House North (Room 1086), Millbank, London, S.W.1. United Kingdom firms submitting tenders should notify that Department.

Notes and News

Draughtsman Required.—Applications are invited for the post of draughtsman, experienced in steam or diesel locomotive work, required by works in north-east England. See Official Notes on page 739.

Railway Benevolent Institution.—At a meeting on June 20 the board of the Railway Benevolent Institution granted annuities to three widows and two members involving an additional liability of £61 15s. a year; 21 gratuities were also granted amounting to £285 10s. to meet cases of immediate necessity. Grants made from the casualty fund in May amounted to £517 12s. 6d.

Hurst Nelson & Co. Ltd.—The directors of Hurst Nelson & Co. Ltd. recommend a dividend of 20 per cent., less tax, on the £400,000 ordinary shares for the year to March 31 last. This compares with 15 per cent. for the previous year. The profit for the year, after meeting all charges, including taxation of £90,993, amounted to £61,901, as against £46,586. General reserve receives £10,000 and the carry-forward is £74,862.

Antofagasta (Chili) & Bolivia Railway Co. Ltd.—After meeting debenture interest, paying the 5 per cent. preference dividend for the second half of 1940, providing for taxation, contributing £220,000 to the renewals accounts, and placing £65,000 to contingencies reserve, etc., there remained a balance on net revenue account of the Antofagasta (Chili) & Bolivia Railway Co. Ltd., at December 31, 1950, including £480,176 brought forward, of about

£519,700, against £507,700, including £465,556 brought forward, at December 31, 1949. A dividend of 5 per cent. in respect of 1941 will be paid on July 20 on the preference stock, and this will leave about £467,200 to be carried forward.

British Railways Coal and Steel Carrying.—During the weekend to June 25 British Railways cleared 233,640 tons of coal from deep-mined pits and open-cast sites; this makes a total of 3,091,960 tons for the week. The latest figures for iron and steel show that 210,152 tons were conveyed during the week ended June 16 from the principal steelworks.

Railway Sports Ground at Lowestoft.—Mr. H. H. Halliday, Regional Staff Officer, Eastern Region, British Railways, opened the new Lowestoft Railway Social & Athletic Club ground at Waveney Drive, Lowestoft, on June 9. The ground covers 7½ acres and includes football and cricket pitches, as well as a bowling green and two hard tennis courts. Mr. O. F. C. Bender, District Engineer, who is the President of the club, presided at the opening ceremony, and was supported by the Mayor, Mr. W. H. Amy, and a number of Eastern Region officers.

British Electric Traction Co. Ltd.—For the year ended March 31 the directors of the British Electric Traction Co. Ltd. propose the following dividends: Final of 5 per cent., making 8 per cent., on the 6 per cent. participating preference stock; final of 17½ per cent., making 25 per cent., on the deferred ordinary stock; and a final of 17½ per cent., making 25 per cent., on the "A" deferred ordinary stock issued as a 200 per cent. bonus to deferred stockholders in December, 1949. For the previous year the preference payment was also 8 per cent., but the deferred dividends were, in the aggregate, equivalent to 22½ per cent. on the total stock in issue at March 31, 1951. The group net profit for 1950-51, after providing £850,804 against £921,340 for taxation, is £1,211,426 against

£1,350,266. Allowing for minority interests in subsidiaries, and deducting the profits retained by subsidiaries, the net profit of the parent company is £639,207 as compared with £638,031. The sale of British Gas stock during the year resulted in a surplus of £344,078.

Decrease in N.U.R. Membership.—A further drop in membership is reported by Mr. J. B. Figgins, General Secretary, National Union of Railwaymen, in his financial statement for 1950. Membership decreased by 29,398 to 391,799, which compares with 421,197 at the end of 1949, 454,710 in 1948, and 462,205 in 1947.

Refreshment Facilities on Euston-Watford-Birmingham Trains.—As from July 2 the London Midland Region will provide buffet cars on the midday Euston to Birmingham New Street and on the 5 p.m. New Street to Euston trains from Monday to Friday. These trains call at Watford at 12.27 p.m. on the outward journey and at 7.15 p.m. on the return.

George Spencer, Moulton & Co. Ltd.—A dividend of 7½ per cent., less tax, for 1950, against 5 per cent. on the £268,005 capital, is recommended by the directors of George Spencer, Moulton & Co. Ltd. The profit for the year is £98,206, against £64,141, while tax takes £47,164, against £35,755. General reserve receives £30,000 and £37,557 is carried forward.

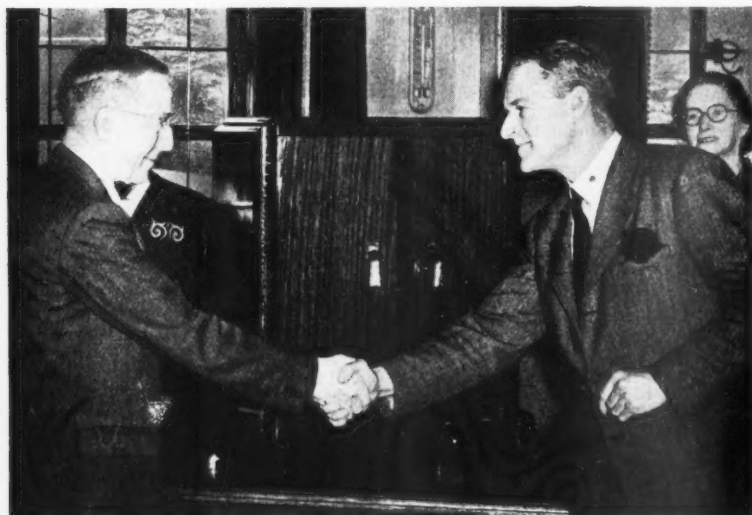
Keith Blackman Limited.—The firm of Keith Blackman Limited is paying a dividend of 22½ per cent., less tax, for the year to March 31, 1951, on the ordinary capital increased to £300,000, against 20 per cent. on £250,000. The profit for the year is £238,170, against £208,736, and the available balance £297,829 as compared with £267,709. Taxation takes £125,000 and the carry-forward is £90,342 against £59,659.

Reduced B.E.A.C. Deficit.—Last year the British European Airways Corporation reduced its deficit to below £1,000,000. When the accounts for the year to March 31, 1951, are published later this year they will show a loss of about £980,000 as compared with the deficit of £1,360,000 incurred in the previous year. Lord Douglas of Kirtleside, Chairman, recently said that he had hoped for an even lower deficit, but increased petrol duty and devaluation had raised costs by some £700,000. The revenue target of £9,000,000 had been achieved despite poor winter traffic.

B. & S. Massey Limited.—At a meeting of the directors of B. & S. Massey Limited on June 11, the following information concerning preliminary figures in respect of the year to March 31, 1951, together with dividends recommended, were given: A consolidated trading profit of £225,993, against £206,541, which, after deduction of tax, £109,081, depreciation, £17,704, etc., leaves a consolidated net profit of £86,500 as compared with £83,164. It was resolved to recommend a final ordinary dividend of 10 per cent. as before, plus a further bonus of 5 per cent., making 25 per cent. against 22½ per cent.

Potteries Motor Traction Co. Ltd.—The directors of the Potteries Motor Traction Co. Ltd. are considering the issue of further capital, and it is understood that an approach has already been made to the Capital Issues Committee. Recently the company acquired five other bus under-

Presentation to Mr. Wilfrid Naylor



Mr. E. W. Arkle (right), Commercial Superintendent, North Eastern Region, making a presentation on behalf of the staff to Mr. W. Naylor, Assistant to the Commercial Superintendent, on the occasion of his retirement

OFFICIAL NOTICES

WE buy used or unserviceable Steel Files at good prices, in lots of 2 cwt. or more.—THOS. W. WARD LIMITED, T.S. Dept., Albion Works, Sheffield.

DRAUGHTSMAN experienced in steam or diesel locomotive work required by works in N.E. England. Permanent position to suitable man. Pension Scheme, etc. Apply Box 133, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

JUNIOR Traffic Officials with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

THE PERUVIAN CORPORATION LIMITED.—Assistant to Chief of Traction, Peruvian Railways; age 26/35. Qualifications: Apprenticeship with steam locomotive builders or main-line railway workshops, main experience with a locomotive running department. Knowledge of diesel power an asset. Higher National Certificate for Mechanical Engineering or graduate of Institute of Mechanical Engineers. A knowledge of Spanish an advantage. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth, 8½ in. by 5½ in. 82 pp. Diagrams. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

DIRECTORY OF RAILWAY OFFICIALS & YEAR BOOK. A useful reference book for railway officers, engineering firms, and all who do business with railways. The only Directory which enables one to find the right railway and the right officer at the right moment. Issued July each year. Price 30s. net. Tothill Press Limited, 33, Tothill Street, London, S.W.1.

takings at a purchase price around £500,000, and one of the objects of any new issue would be to assist in the financing of these latest acquisitions. There is at present in issue 632,034 ordinary £1 shares, of which the British Electric Traction Co. Ltd. holds 376,375 shares.

Clifton & Lowther Depot Closed.—Clifton & Lowther (ex-L.N.W.R.) Goods Depot was closed for all traffic, except traffic for private sidings, on and from June 1. Alternative arrangements have been made for dealing with freight train traffic.

Hackbridge & Hewitt Electric Co. Ltd.—The directors of the Hackbridge & Hewitt Electric Co. Ltd. recommend a final ordinary dividend of 13 per cent., against 11 per cent., making 18 per cent., against 15 per cent. Trading profit of the group for the year ended March 31 was £379,331 as compared with £339,899. After providing for depreciation, and £196,150 (£158,000) for taxation, the net profit was £142,720, against £135,016.

Acquisition of B.S.A. Steel Interests.—The Iron & Steel Corporation of Great Britain has notified the Birmingham Small Arms Co. Ltd. of its intention to exercise the option to acquire the steel interests of the B.S.A. group, consisting of William Jessop & Sons Ltd., J. J. Saville & Co. Ltd., and Bromley Fisher & Turton Limited. Negotiations on price and date of transfer are proceeding between the representatives of the corporation and the B.S.A. company.

Associated Electrical Industries Limited.—At the annual general meeting of Associated Electrical Industries Limited the directors announced their intention of submitting to the stockholders proposals for the conversion of 8 per cent. preference stock into 4½ per cent. preference stock and the issue of further ordinary and 4½ per cent. preference shares. Details of procedure having now been settled, the directors state that a letter setting out in detail the proposals will be posted to stockholders on July 3, together with notices of separate meetings of the preference and ordinary stockholders and of an extraordinary general meeting to be held on July 27.

International Conference on Automatic Control.—A conference on the theory and use of automatic control is to be held at the College of Aeronautics, Cranfield, Bedford, from July 16-21. Leading scientists and technicians from many countries are meeting to discuss the latest advances in this field in which Britain has made major contributions. Sir Ben Lockspeiser, Secretary of the Department of Scientific & Industrial Research, will open the conference and among those who will act as Chairmen during the discussions are Professor Dr. Van der Pol, International

Telecommunications Union, Switzerland; Sir John Cockcroft, Atomic Energy Research Establishment; and Sir Charles Goodeve, British Iron & Steel Research Association. Papers will be read by scientists from Canada, France, Germany, Holland, Sweden, Switzerland, and the U.S.A.

Increase in Road Casualties.—Casualties on the roads of Great Britain during April totalled 16,049 as compared with 14,005 in the corresponding month last year. Deaths numbered 379, as compared with 349, seriously injured 3,930, against 3,458, and slightly injured 11,740 as compared with 10,198. Total casualties in April, 1939, were 18,597. There was a sharp rise in child pedestrian casualties, which numbered 2,297 as compared with 1,835 in April, 1950, an increase of 25 per cent.

Scottish Branch Line Closing.—As from August 6 the passenger train service will be withdrawn from the Kilsyth branch line on the Scottish Region. The stations concerned are Twechar and Kilsyth. Long-distance rail passengers will be booked to Glasgow from which place a bus service operates. Passenger train parcels and miscellaneous traffic will continue to be dealt with at these stations and will be conveyed by freight train or motor vehicle to connect with the passenger train service. There will be no alteration in the existing freight train traffic arrangements.

R.C.T.S. Nottingham Area Tour.—A tour organised by the Railway Correspondence & Travel Society took place on June 16 over some little-used lines in the Nottingham area, starting from Nottingham Victoria. The special train was made up of four ex-L.N.E.R. saloon-type coaches, and was hauled by No. 67363 of Class "C12." The route was taken to Daybrook via Netherfield, reversing and along the Nottingham suburban line—closed to passenger traffic in 1931 and now used by only three goods trains a week—to Thorneywood. After reversal the train returned to Daybrook and continued to Bestwood where, after another reversal, it left for Ilkeston and the Heanor branch, closed to passenger traffic. From Heanor the train returned to Nottingham Victoria via New Basford.

Through Freight Service from Spain to London.—A new service for the conveyance of fresh fruit from Spain to British markets was opened on June 26 with the arrival at Southwark depot of two wagons of apricots. This service has been made possible, as was stated in Overseas Railway Affairs in our issue of March 16, by the construction of special wagons fitted with interchangeable axles, enabling them to operate on the Spanish railways, whose gauge is 5 ft. 6 in., and also on the French and British gauge of 4 ft. 8½ in. These

wagons have been constructed for the Transfesa Company of Spain and can be used as refrigerator wagons or as ordinary ventilated vans. The two wagons referred to travelled from Sagunto in Spain and crossed the Channel via the Dunkirk-Dover Ferry.

Cuban Railway Nationalisation.—President Socarras of Cuba has announced that the British-owned United Railways of Havana will be nationalised before September 15, according to an agency message.

North Western Road Car Co. Ltd.—The report of the North Western Road Car Co. Ltd. for the year ended March 31 last shows a net profit of £179,940, compared with £268,391. A final dividend of 10 per cent. tax free, making 20 per cent. for the year is recommended. A balance of £132,512 is carried forward.

Maidstone & District Motor Services Limited.—Net results of Maidstone & District Motor Services Limited for the year ended March 31 last, show total revenue of £2,322,949, compared with £2,516,215. Operating, maintenance, and other expenses totalled £1,720,278 (£1,786,529). After deduction of fuel tax, duties and rates, depreciation, taxation, and so on, there remained a net profit of £124,597 (£272,636).

Increased Bus Fares in Kent Authorised.—Authority has been given to Maidstone & District Motor Services Limited to increase its fares. Single fares between 1d. and 3½d. will be increased by ½d. and those between 4d. and 11d., by 1d. Return fares under 1s. 3d. will be withdrawn and all other returns will be increased by from 10 to 13 per cent. Season tickets for adults will be raised by 20 per cent. and for scholars and children, 25 per cent. Workmen's daily returns will be issued at one-and-a-half times the single fare, instead of the single fare as at present.

Statement by British Iron & Steel Federation.—As a result of comments made by Mr. G. R. Strauss, Minister of Supply, at a conference of the Amalgamated Union of Foundry Workers at Margate last week, the British Iron & Steel Federation has issued copies of recent correspondence between it and the Iron & Steel Corporation of Great Britain. The Federation states that, contrary to an allegation by the Minister, stocks of pig-iron and scrap were higher on February 15, 1951, when the Corporation acquired public ownership of certain companies, than in the corresponding date in 1948 or 1949. The following figures showing stocks held at mid-February, 1948, 1949, 1950, and 1951 are given: scrap (tons): 348,000; 519,000; 813,000; 521,000; pig iron: 205,000; 267,000; 531,000; 431,000. The correspondence discloses that the Iron & Steel Corporation of Great Britain, which controls the

publicly-owned steel firms, proposes to acquire control of the British Iron & Steel Corporation Limited, the trading organisation of the British Iron & Steel Federation. The federation has replied that it cannot agree to this proposal.

Steel Output Falls.—The Economic Commission for Europe has announced that Britain produced less steel in the first quarter of this year (5,483,000 tons) than in the first quarter of 1950 (5,552,000 tons), and was the only steel producer in Western Europe whose production fell. The fall corresponded to a contraction in German scrap exports. Output might improve as new steel plant came into operation later this year.

J. Stone & Co. (Holdings) Ltd.—The directors of J. Stone & Co. (Holdings) Ltd., report a group net profit for 1950 of £495,181, as compared with £374,109 for 1949, which represents an increase of £121,072. This is after allowing for taxation of £630,737 against £517,629. Recovery of war damage and taxation reserve of subsidiary not required provides £66,890. The final dividend on the ordinary and "A" ordinary stock units is again 7½ per cent., making 12½ per cent. for the year, less tax, the same as for 1949, while there is also a special distribution of 2½ per cent. out of realised capital profits. Carry-forward is £691,369.

Steel Productivity Team.—At the end of its tour of the U.S.A. the British iron and steel productivity team is generally convinced that higher American output is the result of larger production units rather than special methods or different usages of equipment. Though analysis figures are not complete, Sir Charles Goodeve, Director of the British Iron & Steel Research Association, considers that American output per manhour exceeds that in Britain from slightly better in the rolling mills up to double in blast furnaces. Various general conclusions have apparently been accepted by the majority of the team and these include British superiority in fuel economy and in metallurgy.

G.N.R.(I.) Wage Increases.—The Irish Railway Wages Board granted to G.N.R.(I.) clerical grades on March 19 Coras Iompair Eireann rates of pay in the Republic of Ireland and Ulster Transport Authority rates to similar staff in Northern Ireland. On April 23, awards were also made to conciliation grade staff but the company, in both cases, adopted the attitude that the increases could not be paid because of shortage of money. Last week members of No. 3 branch of the Transport Salaried Staff Association decided that Sunday duty and overtime would not be worked from June 24 as a protest against the delay in implementing the awards. Before this action was taken, it was announced that both the Dublin and Belfast Governments had made the necessary money available.

Forthcoming Meetings

June 30 (Sat.) & July 1 (Sun.).—Permanent Way Institution, London Section, visit to York.

June 30 (Sat.).—Irish Railway Record Society, visit to Inchicore Works, Coras Iompair Eireann.

July 7 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, visit to opencast coal site near Bolton.

Railway Stock Market

Stock markets opened the week with conflicting movements resulting from the possibility of a "cease fire" in Korea. British Funds were up to 10s. better at one time although later the gains were reduced to 5s. Industrial shares generally showed moderate improvement. Apart from Korea the market outlook will also be governed by the outcome of the Persian oil crisis. Industrial shares remain under the influence of the higher dividend payments and the view that profits are likely to rise further this year despite higher costs and shortages of materials.

Foreign rails have been firmer, with strength of Antofagasta preference the feature on the view that if the uptrend in traffic continues it may not be long before there is another payment in respect of outstanding dividend arrears. The preference stock has risen to 67½ and the ordinary stock to 11½. Leopoldina stocks became firmer, with the ordinary at 10½, the preference 27, the 4 per cent. debentures up to 96, and the 6½ per cent. debentures 141. Leopoldina Terminal 5 per cent. debentures kept at 94 and the ordinary units were 1s. 1½d. The recent fall in United of Havana stocks tended to attract buyers in a small way with the result that the 1906 debentures firmed up to 16½ after being lower. Nitrate Rails shares were 23s. 9d. and Taltal 18s. Manila "A" debentures kept at 75 and the 5 per cent. preference were 8s.

Canadian Pacifics were 55½ "ex" the higher interim dividend. The 4 per cent. preference firmed up to 72 and the 4 per cent. debentures were 93. La Guaira ordinary stock was 85 and Bolivia "C" debentures 59. White Pass Yukon 5 per cent. debentures were 186½ and the income debentures 87½. Paraguay Central income stock has changed hands around 2½ and Guayaquil & Quito 5 per cent. bonds around 30. Barsi Light Railway changed hands at 85. San Paulo 10s. units were 14s. 6d. and Brazil Rail bonds 85s.

There has been little movement in shares of road transport companies. B.E.T. stock, however, came back sharply to 52½ despite the raising of the dividend from 22½ per cent. to 25 per cent. Results were regarded as a good achievement considering the reduced income from road transport interests. Southdown were 10½s. 3d. xd., West Riding were 52s., and Lancashire Trans-

port 60s. 6d. Devon General 7 per cent. preference shares have marked 22s. 6d. xd. Maidstone & District ordinary were 7½s. 3d. and Potteries Traction 38s. 9d.

Engineering and kindred shares have displayed firmness. B.S.A. rose sharply to 46s. 6d. on estimates of compensation for the steel subsidiaries which are now to be nationalised. Fixing of compensation may not be settled however until after lengthy negotiations. Guest Keen changed hands over 6½s. following the statement at the meeting that the company sold the whole of the balance of its steel compensation stock before the recent decline in the gilt-edged market. Vickers and Cammell Laird strengthened in price, but John Brown reflected a little profit-taking despite continued market hopes of an increase in the forthcoming dividend. T. W. Ward have been firmer at 75s. on higher dividend talk and Babcock & Wilcox firmed up to 8½s. 3d. J. Stone were close on 60s. on the full results and the statement in the annual report that the volume of unexecuted orders is greater than at any time in the history of the group.

Hurst Nelson moved higher at 60s., Birmingham Carriage were 39s. 3d., and Charles Roberts remained active on hopes of an increase in the pending dividend, but at 110s. failed to hold all their earlier rise. North Central Wagon shares were 13s., Gloucester Wagon 17s. 3d., and Central Wagons 93s. 9d. Vulcan Foundry changed hands around 30s. 6d., North British Locomotive eased slightly to 19s. 3d., Beyer Peacock were 33s. 6d., and Wagon Repairs 5s. shares 15s. 10½d. Business around 18s. 6d. has been recorded in G. D. Peters 5s. shares.

SHEFFIELD TWIST DRILL & STEEL CO. LTD.

—At the fourth annual general meeting of the Sheffield Twist Drill & Steel Co. Ltd., held on June 20 at Sheffield, Mr. Alexander Dormer, Acting Chairman & Joint Managing Director, presided. The company's profit for 1950 was £491,111, compared with £398,198 for 1949. After deduction for taxation, the sum of £190,996 remained. The addition of £26,369 brought forward gave a balance of £217,365, of which £100,000 was transferred to the general reserve account.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date	
			Total this year	Inc. or dec. compared with 1949/50		Total 1950/51	Increase or decrease
Canada	Antofagasta ...	811	15.6.51	£ 153,440 + £ 104,270	24	£ 2,708,100 + £ 1,240,050	
	Costa Rica ...	281	May, 1951	c566,653 - c467,774	47	c10,178,533 + c694,485	
	Dorada ...	70	May, 1951	35,183 - 6,442	21	177,217 - 30,174	
	Inter. Ctl. Amer. ...	794	Apr., 1951	\$871,081 - \$181,452	17	\$4,624,190 - \$206,998	
	Paraguay Cent. ...	274	15.6.51	\$233,327 + \$34,728	50	\$10,510,421 + \$2,818,171	
	Peru Corp. ...	1,050	May, 1951	\$7,824,000 + \$1,150,000	48	\$84,221,000 + \$19,886,942	
	" (Bolivian Section)	66	May, 1951	Bs. 17,879,000 + Bs. 8,708,000	48	Bs. 144,382,000 - Bs. 37,699,336	
South & Cen. America	Salvador ...	100	Apr., 1951	c166,000 + c18,000	43	c1,729,000 + c105,000	
	Taltal ...	154	May, 1951	\$2,256,051 + \$685,126	48	\$18,869,332 + \$3,218,865	
Canada	Canadian National†	23,473	Apr., 1951	16,818,000 + 2,159,000	17	64,458,000 + 10,909,000	
	Canadian Pacific†	17,037	Apr., 1951	11,648,000 + 1,721,000	17	44,384,000 + 6,731,000	
Various	Barsi Light* ...	167	Apr., 1951	50,227 + 16,440	4	50,227 + 16,440	
	Egyptian Delta ...	607	10.4.51	17,513 - 267	4	17,513 - 267	
	Gold Coast ...	536	Mar., 1951	288,386 + 29,182	52	3,141,271 + 333,187	
	Mid. of W. Australia	277	Mar., 1951	41,113 + 7,335	39	357,497 + 81,623	
	South Africa ...	13,347	26.5.51	1,778,153 + 234,302	8	15,012,446 + 2,668,733	
	Victoria ...	4,744	Feb., 1951	1,739,845 - 87,111	35	—	

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1

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